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MIXING PLANTS FOR BITUMINOUS CONCRETE*

Permanent, Portable and Semi-Portable Plants Used by Five Contractors for Work on Roads in Queens Borough
—Description of Nine Plants.—Relative Economy of the Three Types.—Chemical Tests at Plants.

By A. F. GRUENENTHAL, Assistant Engineer, Bureau of Highways, Borough of Queens, N. Y.

At the time of being incorporated into the Greater City of New York the roads of Queens Borough were to a great extent water-bound macadam. Lack of care and maintenance allowed these roadways to become thoroughly disintegrated, making repaving an absolute necessity. So large was the amount of money required that the city officials came to the conclusion that, since the roadways were thoroughfares used by the city at large, the requisite amount should be levied by taxing Queens 15 per cent and the Greater City 85 per cent. After much careful consideration of the character of the travel, of the grades, of the first cost, etc., it was finally decided to use the remnants of the old macadam as foundation, supply new broken stone or concrete where necessary and cover the strip used as a carriageway with bituminous concrete. The result was that the average cost for the greater part of the 1,396,550 square yards of pavement was \$1.11, the prices ranging from \$1.00 to \$1.20 per square yard. A very small percentage, due to unusual conditions prevailing, ran as low as 86 cents and 91 cents, while the Hoffman Boulevard, a much-traveled street, cost \$1.44 per square yard. These prices included the wearing surface of asphaltic concrete and the preparing of the macadam surface for the same.

In all cases high grade material was called for, and over three-fourths of the work was with Bermudez. The mineral aggregate called for 5 per cent to 11 per cent of material passing through a sieve of 200 mesh; 18 per cent to 30 per cent of material passing through a sieve of 40 mesh; 25 per cent to 55 per cent of material passing through a sieve of 10 mesh; 8 per cent to 22 per cent of material passing through a sieve of 4 mesh; no more than 10 per cent of material passing through a sieve of 2 mesh.

The asphaltic cement was from 7 per cent to 11 per cent.

An inspector was detailed at each plant and his duties were to make frequent tests of the mineral aggregate and to make such changes in the proportions of sand and screenings as were necessary to bring the mixture up to the requirements. Much difficulty was at first experienced in getting the proper proportions for a "close" mixture, contractors always claiming "we are within specification limits." It gradually dawned upon them that the following of our orders was for their own good and the result is that the greater part of the work is of a very close mixture. Inasmuch as chemical analyses of the asphaltic cement were desired, the inspectors

took large samples of the asphaltic cement at least twice a week. Inasmuch as the street reports showed where the work was progressing each day, it was a simple matter to locate where the mixture for each sample was laid. The reports of these samples were regularly received from the Standard Testing Laboratories and with very few exceptions were remarkably uniform. Contractors, realizing that payment for work performed might be held up indefinitely if obstacles were put in the way of the inspectors, saw to it that every facility was afforded them and their orders were invariably promptly obeyed. The Uvalde and the Standard Bitulithic companies sent daily samples to their own chemists while J. F. Hill had a chemist stationed at the plant. It was found that the only time temperature trouble occurred was in the early morning at commencement of work.

Contracts for the work were let as follows:

Standard Bitulithic Co., 11 contracts, 34.51 miles Bermudez and California; Uvalde Contracting Co., 7 contracts, 18.26 miles Bermudez; J. F. Hill, 4 contracts, 10.73 miles Pioneer, Gilsonite; Borough Asphalt Co., 2 contracts, 7.10 miles Monarch, California; Continental Public Works Co., 3 contracts, 7 miles Bermudez and California; Barber Asphalt Co., 4 contracts, 4.70 miles Bermudez; Newton Paving Co., 1 contract, 2.91 miles Bermudez; Cleveland Trinidad Asphalt Co., 1 contract, 2.10 miles Montezuma, Mexican; Dayton Hedges, 1 contract, 2 miles California and Texas, making a total of 89.31 miles of pavement of the asphaltic concrete type. In addition to this, 1.83 miles of sheet asphalt were laid.

THE PLANTS.

There were three general types of plants in use viz: the permanent type, the semi-portable type and the portable type. The users of the first type were the Barber Asphalt Co., the Borough Asphalt Co., the Uvalde Contracting Co. and the Cleveland Trinidad Asphalt Co. The second type was used by the Standard Bitulithic Co. and the Barber Asphalt Co., and the third type was used by all of them except the Cleveland Trinidad Asphalt Co. and the Barber Asphalt Co.

The Uvalde plant is situated on Metropolitan avenue at Newtown Creek and the transportation of nearly all of its material is by means of trolley flat cars capable of holding 30 mixing box loads. Arriving at the nearest point to the work, the cars are unloaded into regular asphalt carrying wagons and the material is brought to the work by them. The plant itself is a two-story steel frame, corrugated iron structure. The mineral aggregate is elevated to the dryers from stock piles by means of five elevators. Four Pioneer Iron Works drums each

*Presented at the Cleveland Meeting of Section D of the American Association for the Advancement of Science.

36 inches in diameter and 26 feet long heat the material. From these drums the material is screened and emptied into receiving boxes. From these boxes the proper amount of each material is weighed and emptied into two 16-foot mixing boxes. Here the asphaltic cement is added and after proper mixing of ingredients the product is dumped into the cars or wagons awaiting it. The asphaltic cement is heated in three kettles of 32,000 lbs. capacity each, fitted with mechanical as well as air agitators. The barrels of material are brought up from the yard by means of a special barrel elevator and emptied into tank No. 1. Here the material is melted and flows into tank No. 2 where the fluxing takes place. The fluxed material is then forced into tank No. 3 from which the asphaltic cement is ladled into a bucket attached to a scale and then brought over to the mixing boxes on overhead tracks. At this plant fuel only is used as a heating agent. Although the capacity of the plant is 4,000 square yards of 2-inch pavement per 8-hour day, the highest run was 3,500 square yards. The plant is quite dusty and dirty, though not as bad as one would expect it to be. The Uvalde Company use Bermudez entirely unless their contracts call for material of other nature.

The Barber Asphalt Plant (Permanent) is almost an exact duplicate of the Uvalde plant, but somewhat older. Its capacity is the same and its best run was only about 3,000 square yards per 8-hour day. The plant is very dusty and dirty. Bermudez only is used.

The Cleveland Trinidad Asphalt Co. constructed this year a 2,500 square yards per 8-hour day plant on Flushing Creek, Flushing. The plant is equipped with a Cumber dryer 48 inches in diameter and 30 feet long. A three-door furnace with a 5-ft. 6-in.x12-ft. fire box supplies the necessary heat for the dryer and arrangements are present whereby oil fuel can be used in place of coal as at present. From a stock pile 2 chain and bucket elevators feed into the dryer directly. The dried material comes through the drum into a boot where an elevator raises it into a storage bin of 12 cubic yards capacity. From here the material is screened and enters a weighing box which discharges directly into the mixing box of 9 cubic feet capacity. Four kettles, three of 12,000 lbs. and one of 18,000 lbs. capacity, fitted with both air and mechanical agitators, supply the asphalt. They are interfeeding and the heating is done with fuel, although arrangements are there for fuel oil burners should the change be necessary. The engine is an old horizontal of the Vulcan type of 45 h.p. and the boiler is an upright 60 h.p. affair. The plant stands in the open and is unprotected in any way. The best run the plant had was 2,117 square yards for one 8-hour day and averaged 1,483 square yards per day for six consecutive days.

This company was the only one which used automobile trucks. They had in service three Pierce Arrow 5-ton trucks. They dumped from the back by means of an air pump, which, worked by the driving engine, elevated the forward part of the body about 4 feet. The steel sides of the body being smooth, not a particle of the mixture remained in it once it began to slide. The trucks were considered remarkably effective and showed their superiority over horse-drawn vehicles.

The Borough Asphalt Co. Plant, at which Monarch brand of California asphalt is used, is by far one of the cleanest plants in and around New York. It is situated on Metropolitan avenue and has a frontage on a branch of Newtown creek. The material is brought up to the dock on scows, and a stationary derrick fitted with a one cubic yard clamshell bucket elevates it to a 200-yard hopper. An automatic car, fed from this hopper, brings the material over an elevated railway to the main build-

ing where it empties its contents into a cubical storage bin of 36 feet to the side. The main building is a 3-story steel frame covered with corrugated iron, and material once emptied into it never comes from under cover until it is a finished product. The building is divided by a driveway through its center, the aforementioned bin occupying a rear portion of it while directly in front of it are the asphalt kettles. On both sides of the driveway are chain and bucket elevators which bring the material to the dryers on the third floor. There are two dryers, each 5 feet in diameter and 35 feet long, heated by oil burners. After passing through the drums, the material is screened by means of 10-foot screens 30 inches in diameter. All material not passing through the screens is shot into a bin occupying the opposite corner of the building from the storage bin.

The material which does pass through enters the hot sand boxes directly under the several screens. These boxes occupy a space 30 feet long, 10 feet wide and 10 feet deep and are so constructed that the openings therefrom are on the second floor. There are 5 such openings, 3 for sand and 2 for screenings. These openings are for as many compartments and admit of an adjustment of temperatures. As the material leaves the openings it feeds into a bucket until the proper weight, which has been previously figured from tests, is obtained. This admits of any percentage desired and assures a uniform mixture. The bucket holds about 1,600 lbs. and has attached to it a Fairbanks standard scales.

On the third floor there is also the lime dust storage room from which the dust, by means of a chute, is brought to the mixing box, after being weighed in order to get the proper amount. In order to prevent the loss of dust and the unpleasant vapors which arise when the various ingredients enter the mixing boxes, all this portion of the plant is carefully covered by one-eighth of an inch sheet steel, the asphalt cement being added through a lipped contrivance which prohibits the escape of the dust, etc. This protective arrangement, as well as the carefully constructed lime dust chute, is one of the distinctive features of the plant and in this lies the major part of the sanitary conditions which prevail.

The asphalt cement is heated in four large kettles supplied with both air and mechanical agitators. These interfeed by means of air pressure and open troughs which are fed by pumps worked either by hand or air. Tanks No. 1 and No. 2 are large melting kettles, each 10x15x10 ft., and empty into working tanks No. 3 and No. 4, each being 5x10x8 ft. The tops of these kettles are on a level with the second floor and the material therefrom is brought over to the mixing boxes by means of an overhead railway. The buckets are filled from taps which are operated by air, and have a capacity of 300 pounds. The barrels of the refined material are elevated from the ground to the second floor by means of a continuous belt barrel elevator which brings the material directly in front of tanks No. 1 and No. 2. Immediately behind these tanks is a large fluxing tank of 30,000 gallons capacity, the material from which is emptied into tanks No. 1 and No. 2 and No. 3 from taps. Inasmuch as the bottom of this tank is about 5 feet above the second floor, this admits of allowing the flux to enter by means of gravity. Each kettle has its heating furnace located under it on the ground floor and such is the arrangement that either oil or fuel can be used as an agent. In connection with these furnaces there is on the ground floor an additional hot sand box of 125 cubic yards capacity.

The plant is operated by electrical power but, should the power be cut off for any reason, there is always ready for immediate use a 50-h.p. De La Vergne oil burning

engine which is located in a separate brick building adjoining the main structure. In order to be prepared for emergencies, a fuel oil tank of 50,000 gallons is in the yard.

Trolley tracks are laid throughout the yard, thus allowing the use of trolley cars and hence affording easy access to all parts of Brooklyn and Queens Boroughs. The capacity of the plant is 4,000 square yards per 8-hour day. The highest run was 3,320 square yards and the average, 2,500 square yards per day for 31 consecutive working days.

In point of economy and general efficiency it is difficult to conceive of a better plant. Only nine men are required to run it. Delays due to lack of power need never occur, since both electric and power systems are installed and the change from the one to the other is quickly made. Throughout the plant the lack of dust and of noisome odors is strikingly noticed.

SEMI-PORTABLE PLANTS.

There were two plants of this type which were similar in all respects with the exception that the Standard Bitulithic Co. used a 15-foot mixing box and the Barber Co. used a 9-foot box. Both plants were situated in Flushing on Flushing creek.

The mineral aggregate was elevated from a stock pile by means of two elevators, to two drums of the Cummer type, 36 inches in diameter and 30 feet long. From these drums the heated material was raised to a storage bin. After the material had been screened it was emptied into the measuring boxes. Two 1,000-gallon heating tanks were used, the asphalt being ladled into the measuring bucket and then emptied into the mixing box. Fuel was used for heating dryers, asphalt, and the boiler for the horizontal engine of 50 h.p. which supplied the power for the plant. The capacity for each plant was 3,000 square yards a day.

These plants were both very dusty and dirty and frequently broke down. The heating agent being coal, the smoke nuisance was the subject of many complaints. Nineteen men were employed at each of these plants.

PORTABLE PLANTS.

The greatest interest of all, however, lies in the use of the portable plants. Several distinct types were used though the principle in all was the same.

The Standard Bitulithic Company used the "Warrenite" plant, which was the most efficient of this class of plants. They are easily managed, quickly set up or taken down, occupy comparatively small space and do the work well. The company had two of these at Inwood, one at Queens, three at Bayside, three at Glendale and two at Laurel Hill. The plants are equipped with a 35-h.p. high-speed engine and an upright boiler of 35-h.p. The material is deposited by an elevator into a 1-cubic yard bin. A lever controls the entrance into the drum which is 5 ft. in diameter and 14 ft. long. All material is sent into the drum on the volume basis, having been previously screened to meet the requirements. After entering the drum, a Rockwell burner supplies the heat for drying. The dried material is then admitted into the mixer which is at the end of the drum and entrance into which is controlled by a lever. The asphalt is shot into the mixer from a weighing bucket which is filled by ladling. For a two-plant combination, five 1,000-gallon kettles were used, and for a three-plant, six were used. The capacity of each plant is about 1,000 square yards per day. The two-plant combination used about 175 gallons of fuel oil per day for heating dryer, asphalt kettles and boiler. The maximum runs for the plants were:

Bayside, 3 plants, 6 kettles, 2,400 yards.
Glendale, 3 plants, 6 kettles, 2,300 yards.
Inwood, 2 plants, 5 kettles, 2,200 yards.

Queens, 1 plant, 3 kettles, 1,100 yards.

Laurel Hill, 2 plants, 5 kettles, 2,300 yards.

The best run on any one day which these plants had (Queens, Glendale and Bayside) together with the Flushing semi-portable plant was 6,867 square yards and on a three consecutive day run they averaged 6,745 square yards per day.

Simple though the arrangements at these plants were, there was no guess work as to the amounts of material used. Being on wheels and without any unnecessary frills, these plants can be easily and quickly moved, reset and begin operations in a new territory within a few hours after arrival.

The Continental Public Works Company had a portable plant at St. Albans. The plant was equipped with a 50-h.p. high-speed engine and a 60-h.p. locomotive-type boiler. An American process dryer, 4 ft. in diameter and 30 ft. long, asbestos jacketed, was used for heating mineral aggregate. To this was attached a Dutch oven with a 5-foot steel hood 7 feet deep, lined with fire brick and having a baffle wall against which the oil flame broke. The material entered an enclosed chain and bucket elevator and was raised to screens, from these entering two weighing compartments. This measuring box was so adjusted that the proper combination of mineral aggregate was obtained. The mixing box was of 9 cubic feet capacity. A beam scale and bucket gave the correct amount of asphalt, which was obtained from three 1,000-gallon kettles. A Best burner was used for heating the drum and boiler, while coal was used under kettles. One hundred and eighty gallons of fuel oil were used per day in the heating of the dryer and 220 gallons for the boiler. The best run for one day was 1,636 square yards.

The Dayton Hedges and J. F. Hill companies used the well known Cummer type of portable plants. The former used the ordinary Cummer portable, consisting of engine, boiler, drum and mixer all mounted on one rigging, the three 1,000-gallon kettles being separate. Mechanical agitators were used and the asphaltic cement was ladled to buckets which had scale attachments. J. F. Hill used the large railroad Cummer plant, this being made part of a flat car and thereby admitted of its being easily hauled from one place to another. The best run this company had was 2,098 square yards and an average of 1,900 square yards per day for six consecutive days. The plants were provided with horizontal revolving drums mounted over a fire box and surrounded with a fireproof arch through which the mineral aggregate was fed. The kettles are a part of the car and have a capacity of 2,500 gallons. Material is ladled into buckets from them.

The Newton Paving Company, using the Equitable asphalt plant, had the one exception to the rule, as far as the operation of the plant was concerned. It consisted of a 35 h. p. vertical boiler, a vertical engine and a drum 6 ft. in diameter and 12 ft. long. The peculiarity about this plant was that the mineral aggregate was elevated to a hopper over the drum and from there discharged directly into it. A hot air blower heated the material and when dry and hot the asphalt was shot into the drum by compressed air from a tank containing 52 gallons of asphalt. The tank was fed from a 1,000-gallon kettle by gravity. The plant worked fairly well, its best run being 1,032 square yards in one day. This plant was on wheels and was easily hauled by a traction engine or a six-horse team. Fuel oil was the heating agent. With some improvements this plant would compare very favorably with any other plant, inasmuch as only nine men are required to run it as compared with 15 for the best of the others.

The value of chemical tests was strongly brought out in our work in Queens this year and when one considers

that the bulk of the work was performed in four months, or at the rate of 10,000 square yards per day, it will easily be seen that only rigid inspection and careful chemical tests prevented the entrance of slipshod work. No matter how small the amount of work, the chemist and inspector should be present and care should be taken that they work together and always in the interests of the party of the first part.

The question of economy is an open one, but when one considers that a permanent plant, exclusive of real estate, will average \$40,000 and that the semi-portable and the railroad plants average \$15,000, the smaller portable costing only \$5,000, are well worthy of consideration. Of these portables, the Warrenite plants appear the most economical in first cost and attendant labor, but should improvements be made to the Equitable plant as used by the Newton Paving Co. there is no question but that this plant is the most economical. It costs but \$5,500, requires but nine men, weighs about 35 tons and is easily portable.

LAPORTE'S NEW PARK.

Fox Memorial Park of Laporte, Indiana, was dedicated to the public the last week in June. The park covers twenty acres of ground and is located on a series of hills overlooking Clear Lake and the city of Laporte from the north.

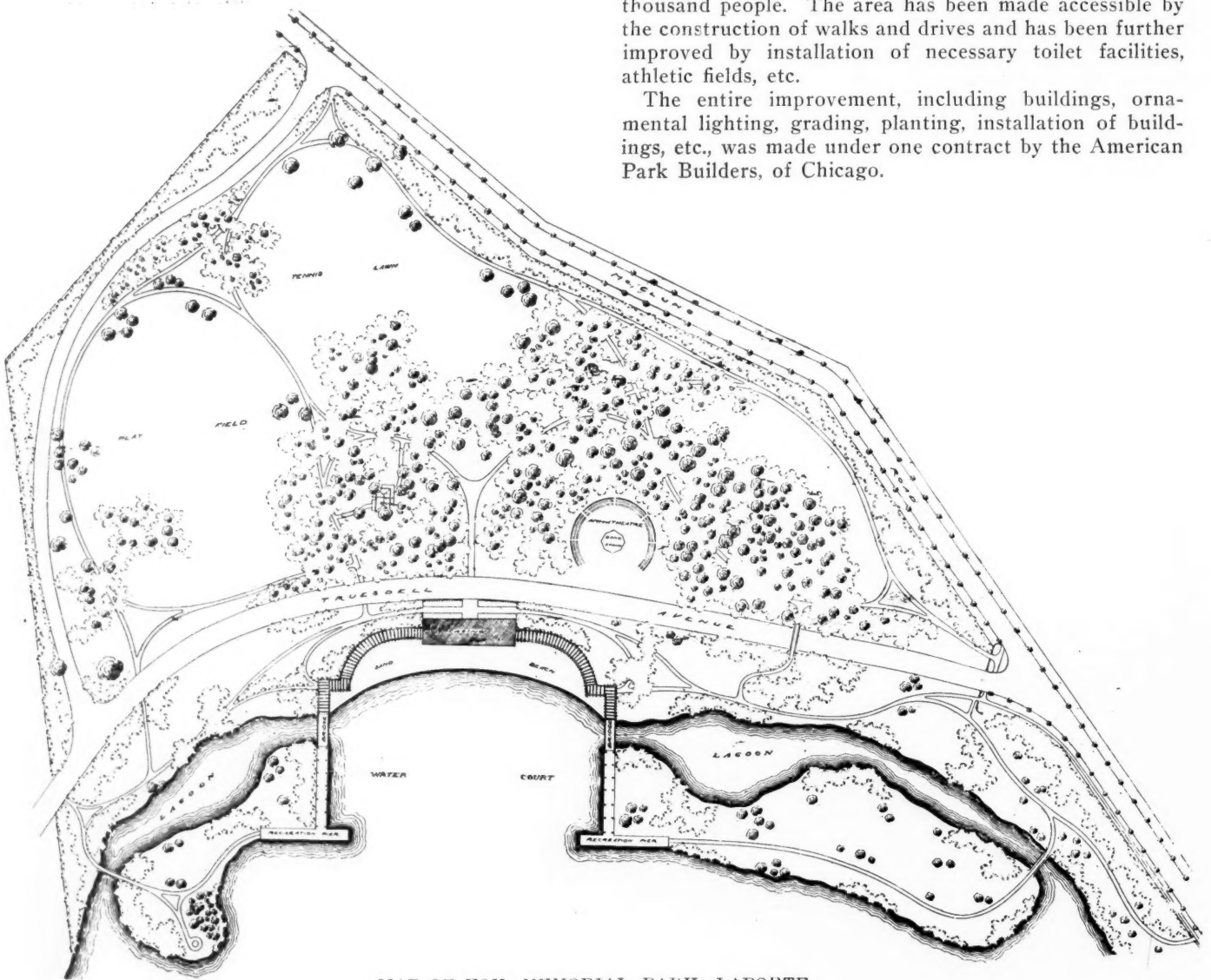
The area is covered with a native growth of well grown white oak, wild crab, cherry, and hawthorne.

The park was given to the city as a memorial to the parents of the Fox Brothers, extensive woolen manufacturers. The treatment of the design is simple and appropriate to its memorial character and at the same time furnishes facilities for wholesome recreation to the people of the city.

A country road skirting the shore of Clear Lake was used as the principal park drive by truing and rearranging the alignment and side grading. The road leads through an entrance way of boulders surmounted with an ornamental wrought iron fence and set with wrought iron lamps. This entrance is backed up by an artificial hill planted out heavily with conifers and screening the interior of the park until the entrance is passed, when a superb vista is unfolded to view.

One of the main features of the park is a shelter building designed in pure Grecian architecture of the Ionic order and flanked with vine-covered pergolas terminating at the boat docks, extending into the lake. Between these boat docks has been constructed a sand beach giving landing facilities for canoes and small boats. A natural amphitheatre nearly circular in shape overlooked by oak covered hills has been utilized as a music court with an attractive band-stand occupying the central position. This arrangement gives unusual acoustic properties and furnishes a seating arrangement for several thousand people. The area has been made accessible by the construction of walks and drives and has been further improved by installation of necessary toilet facilities, athletic fields, etc.

The entire improvement, including buildings, ornamental lighting, grading, planting, installation of buildings, etc., was made under one contract by the American Park Builders, of Chicago.



MAP OF FOX MEMORIAL PARK, LAPORTE.

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JULY 10, 1913.

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Contracts for Contractors.

We publish in this issue the report of a committee of the American Society of Engineering Contractors discussing the subject of contracts, and changes which are desirable in their general form from the viewpoint of the contractor. The committee calls attention to the fact that practically all contracts have been prepared by engineers who, although they have generally endeavored to be fair and just to both parties, are apt to be more or less biased by the fact that they are employed by the party paying for the work rather than by the one who performs it, and to view the subject from the standpoint of obtaining what is desired from the contractor rather than of securing for him what is justly due him.

There have undoubtedly been in the past many clauses and provisions unjust to contractors, many of which, however, have been overruled by the courts and others of which it is generally understood will not be enforced (all of which should, therefore, be omitted); but a number still remain which are objectionable to contractors, some, undoubtedly, with reason.

A provision by which the contractor would be protected from loss caused by delay on the part of the owner or the owner's other contractors is certainly a fair one. Numerous instances could be cited where the

loss of interest on the plant tied up in delayed work and salaries of foremen and other employees which it is necessary to keep on the payroll, etc., have more than eaten up the benefits which the contractor would otherwise and should have made.

Concerning the contention that the owner or party of the first part should guarantee local conditions, such as depth and character of rock, etc., is open to question. In the case of a city street, for instance, we cannot see that the city need be more familiar with the conditions than the contractor, or be in any way responsible for them. On the other hand, the contractor would appear to be entitled to payment for any work which is found necessary in connection with excavating for or otherwise carrying out his contract. It would seem possible to meet this point by providing items in the contract covering all material and work which may be anticipated, with a provision for payment on a payroll basis with allowance for supervision, use of tools, etc., for any character of work which is not anticipated or which it is difficult to fix a unit price upon.

A provision that the contractor's bond should protect the parties furnishing the materials and labor to the contractor seems to us undesirable. This would increase the cost to the contractor of furnishing bond for the work, an increase which is entirely unnecessary in the case of the contractor of established credit, and in case of others, the material men themselves could require bond of the contractor—at any rate, this is a business matter between the contractor and the material man which it does not seem necessary or advisable for the city to form a third party to.

In general, however, the ideas contained in this report seem to us to be admirable. There are too many cases of inexperienced engineers and of city officials timid in assuming responsibility, attempting to place all possible losses upon the contractor, even those for which he is in no way responsible; and if a standard form of contract were generally adopted and recognized, it would be much easier for contractors to insist upon and secure the substitution of such form for any unjust contract.

Municipal Indebtedness Legislation.

A few weeks ago there was placed upon the statute books of Massachusetts, by the unanimous vote of the Legislature, an act, the purpose of which is the restricting and regulating, in accordance with sound financial principles, of the incurrence of municipal indebtedness. This was the result of investigations and recommendations made by legislative committees on municipal finance during two successive years, in which investigations they were assisted by the Bureau of Statistics of that State.

This bill seeks to remedy four fundamental evils of municipal borrowing which have hitherto prevailed in Massachusetts, and probably in most of the other states of the country. These are the incurrence of funded or fixed debt for current expenses; temporary borrowing in anticipation of tax collections to a practically unlimited amount; diversion of the principal of trust funds to current expenses or other purposes not contemplated by the donor, with a resulting perpetual obligation being in effect established; and the inefficient, neglectful and costly management of sinking funds.

The difficulty both of avoiding the first evil and of drawing up a law which will prevent it, lies largely in the difficulty of defining what is meant by "current expenses." The Massachusetts law has endeavored to meet this difficulty by specifying the purpose for which municipal debt might be incurred and the periods for which the loan might run in each case.

It had been the practice of a number of cities to make temporary loans in anticipation of taxes, without limiting the size of the loan to that of the tax levy; that is, loans would be made which greatly exceeded the amount of money to be raised by the following tax levy. The new legislation recognizes the borrowing of money in this way as legitimate, but limits the amount of the loan to that of the tax levy of the preceding financial year.

An investigation made several years ago showed that a large number of Massachusetts municipalities had used the principal of funds entrusted to them for certain purposes without providing any sinking fund or other manner whereby the fund could be repaid. The new state law requires that these funds be returned in 1914 by city tax or, if this would impose too great a burden, by borrowing the money for making such repayment by issuing bonds running not to exceed fifteen years.

The abuses which have been found to exist in connection with the management of sinking funds are remedied by abolishing sinking funds altogether. This does not mean that the cities are to return to the absolute disregard of sound finance found in so many cities of other states where no provision whatever is made for the payment of outstanding bonds, but that the new law now requires that all bonds be issued and made payable by the serial method, provision to be made for retiring bonds by such annual payments as will extinguish the same at maturity, so that the first of the annual payments shall be made not later than one year after the date of issuing the notes or bonds, and "so that the amount of such annual payments in any year on account of such debts shall not be less than the amount of principal payable in any subsequent year. And such annual amount, together with the interest on all debts shall, without further vote, be assessed until such debt is extinguished."

No state of the union has so carefully and thoroughly investigated and supervised the finances of its cities as Massachusetts, and there can be no question that most of the principles embodied in this law could be adopted to advantage by other states (with such modifications as might be required by their respective municipal laws), while the results of certain other provisions of the Massachusetts state law, which are, to a certain degree experimental, will be carefully watched with interest by other cities and states.

AN IDEA OF STREET DEVELOPMENT.

It has probably occurred to most engineers and others who have studied the subject of traffic conditions and difficulties in large cities that the separation of foot and wheel traffic into two different levels would solve many of these difficulties. They may also have thought it probable that it would be cheaper to raise the entire paved street surface and leave the present ground surface for the trains which now use our subways, than it is to tunnel such subway at great expense under existing pavements. The accompanying illustration shows the idea of a writer in "Cassiers Engineering Monthly" for June—Henry Harrison Suplee—which may seem extremely visionary, and yet it contains many practicable ideas which the future may see developed. There are, of course, objections to the elevated sidewalk, one of these being the darkening of the ground floors of buildings in streets where there already exist none too much light and ventilation; another is the cost of construction. The latter, however, should be considerable less than the cost of elevated railroads, since the load to be carried is much less and the cost of the concrete sidewalk would be little, if any, greater than the rails and ties of the elevated road.

At the right of the picture, on the first tier of sidewalks, is shown a moving sidewalk—a device which it seems probable will before long be used in New York City, although the present idea is to place it underground. Stairs are provided for communication between the elevated sidewalks and automobiles or street cars on the roadway below. Entrances for foot passengers to stores and other buildings are provided at the level of the elevated sidewalks, as is now done by several stores in connection with the elevated railroad stations.

There seems to be a mania at the present for placing everything below ground rather than above, where there is to be a separation of grades, and as both cause and effect of this the cost of tunneling for subways has been greatly reduced during the past few years; and it seems probable that many of the advantages of aerial construction as compared to underground are being overlooked. We commend the general idea of Mr. Suplee (greatly simplified from his elaborated conception) to the consideration of those engaged in planning for the streets and traffic of our large cities.

AN INTERNATIONAL MUNICIPAL LEAGUE.

The activities of the National Municipal League and the excellent papers and discussions which are presented at its annual meetings are familiar to the readers of this Journal. There is now under process of organization an International Municipal League, the idea of which originated, we believe, with the Union of Canadian Municipalities. The plan has been favorably considered by the National Municipal League, of the United States, and the Municipal Association of New



A SUGGESTION IN TRAFFIC SEGREGATION.

Zealand, and conditionally by the National Association of Local Government Officials, of England; and is under consideration by two other English associations, three of South Africa, one of Australia, and the League of American Municipalities. As the matter appears to have commended itself to such a number of organizations, the secretary pro tem, Clinton Rogers Woodruff (who is also secretary of the National Municipal League), has brought the matter to the attention of various societies which might be interested, with a view to the completion of a preliminary organization, adoption of a constitution, and election of officers in the early future. To that end there has been prepared a draft of a constitution which has been sent to the officers of such societies, and an invitation to appoint a delegate or delegates to attend a general conference to be called for the purpose of effecting such permanent organization.

PUBLIC CONSTRUCTION CONTRACTS

Desirable Features of a Standard Contract.—Rights and Obligations of Both Parties Exactly Defined.—

Settling Disputes.—Delays.—Bonds.

Report of Committee of the American Society of Engineering Contractors, William B. King, Chairman.

1. Your committee thinks it impossible to submit a complete form to cover all phases of all engineering contracts, but a work of much value can be done by adopting some general principles and formulating them so that they may be made a part of substantially every contract.

2. Every condition of whatsoever character by which the parties are to be bound should be submitted to bidders as a part of the specifications on which they bid. The contract to be signed should be annexed to the specifications. In this way the bidder is not liable to be surprised by new conditions appearing in the contract submitted for his signature after his bid is made and accepted.

3. The greatest vice of contracts is uncertainty. In adopting any form of contract or specifications, every effort should be made to secure exactness of definition of the rights and duties of both parties.

4. Recognizing the impossibility of foreseeing every emergency, some authority must be devised for the determination of either unexpected physical conditions or unforeseen ambiguities in the contract.

5. The first requisite to this is promptness, so that the work may proceed. This doubtless requires that all disputed questions shall be primarily settled by the engineer present on the work.

6. But, while the engineer is the best fitted person to reach a prompt decision, his relation to the owner unfits him for an impartial decision. There must, therefore, be some provision for an appeal to an impartial tribunal, and final settlement of all disputes by it.

7. Disputes should, as far as possible, be settled as the contract progresses, so that the parties can know how they stand. To this end, all matters of dispute should be reduced promptly to writing, and all appeals from the engineer's decisions should be promptly taken.

8. Each party should assume full responsibility for his own share of the contract.

9. This involves the assumption by the owner of responsibility for the local conditions and for the borings or other explorations of the site. The contractor should bid on guaranteed local conditions, with an increase or reduction of price for variations from these. The locality belongs to the owner and the contractor should not be obliged to gamble on it.

10. The principle also requires that a contract should not both provide the exact details of construction and guarantee the result. If the contractor is to do the work

according to exact plans furnished him by the owner, the owner should take the responsibility for the result. If the contractor guarantees the result, he should be free to adopt his own methods of construction.

11. The contractor, especially when bound by a time limit, should be given the utmost freedom as to the order and manner of doing the prescribed work.

12. Definite provision should be made for the assertion in writing of demands made by either party varying from the normal contract price. The contractor should give prompt notice of a claim for extras and the owner of a claim for a decrease or for the assessment of damages.

13. Some rule should be prescribed for the owner's protection in case of delay on the contractor's part, either by a right to annul the contract, or to take over the work in whole or in part, or to deduct actual or liquidated damages. The subject is one of great difficulty and needs most careful consideration.

14. The contractor should be protected from loss by delay of the owner or the owner's other contractors and provisions made for settling such losses, without suit, where possible.

15. What is the proper amount of retained percentages? What should be the maximum part of the contract price to be retained until final payment? Differences of opinion should be adjusted and a uniform rule adopted.

16. Material men insist that the contract bond should provide for payment for materials and labor. This leads to greater security to the material men and consequently lower prices. But it is an unnecessary cost to contractors of established credit. This subject needs the views of both sides.

17. Some contractors and engineers maintain that the contract conditions should be as brief as possible. Your committee believes that all subjects which experience has shown may produce conflict should be definitely disposed of by the provisions fixed in the contract, even if this extends its length.

18. After every effort has been made to avoid all uncertainty in the contract and to settle disputes as they arise, some honest differences of opinion as to the rights of the parties may persist to the end of the contract; the final settlement of uncontested matters should be made without prejudice to the right of the contractor to recover disputed claims in the courts. It has, unfortunately, become too common to declare that on final payment the contractor shall sign a release of all claims arising out of the contract. This is a one-sided and dishonest provision. When payment is earned by a fulfillment of the contract, it ought not to be denied because the contractor believes that he is entitled to more, nor should he be forced by necessity to waive access to the courts to correct wrongs done him in the course of the contract.

Your committee might extend this discussion much farther, but believes that enough has been said to show the difficulties of the subject and the need of full consideration. Many forms of contracts have been drawn by various authorities. The standard forms of the Royal Institute of British Architects and of the American Institute of Architects have much to commend them. One general remark may be made in regard to nearly all such forms—that they have been generally prepared by persons representing owners, such as architects and engineers, and that, however fair their intention, the inevitable tendency has been to protect the owner's rights at the cost of the contractor's.

While this is in name a society of Engineering Contractors, it numbers also many engineers in its membership. It is, therefore, singularly able to formulate a contract which will take into consideration the rights both of the owners and contractors.

BITUMINOUS GRAVEL PAVEMENTS

Editor Municipal Journal, New York City.

Dear Sir: In the May 29th, 1913, issue of Municipal Journal, there appears an unsigned article commenting upon bituminous gravel pavements and on June 19th a similar article was published upon the same subject, signed by J. W. Howard. As both refer to pavements designed and supervised during their construction by the writer, he feels called upon to draw attention to a few errors of fact and conclusion contained in these contributions.

The writer well knew, when the specifications were being prepared, that the bitumen would necessarily vary according to the "bank run" of the gravel, and therefore specified from 18 to 21 gallons of bitumen to one cubic yard of gravel measured loose, in order to meet just such a contingency; as it developed, however, the gravel ran in such uniform size in barge lots that it became necessary to vary the percentage of bitumen but seldom, and then only at the maximum of but one gallon to the cubic yard, measured loose.

The mixtures as to the quantity of bitumen in the Amityville and Babylon roads were practically the same and the so-called "dry" mixture at Amityville did not materially vary from the so-called "too rich" mixture at Babylon. On the Amityville road, however, there was placed no squeegee coat, and the holes in the pavement were intentionally dug out and not caused by inferior material.

The Babylon pavement, after being placed, was covered with a coat of hot oil manufactured by the Standard Oil Company, while the bitumen in the pavement proper was Bermudez asphalt, and therefore any slight defects which may have developed are entirely due to the consistency of this squeegee course, it having "bled" and become so sticky in places that it did adhere to the wagon wheels which pulled up with them, in a few spots, some of the top portion of the mineral aggregate composing the pavement proper. Hot oil would not have been used as a squeegee course had the writer known that the road's maintenance would be neglected to the extent of failing to properly cover it with sand or gravel, and keep it covered until wagon tires ceased to pick up any of the material. Every highway engineer knows by experience that, with the hot oil treatment, the surface will be destroyed by heavy wagons if not kept covered, but that it can and does resist the traffic of lighter wagons, automobiles and even motor trucks. If bitumen of the same consistency as in the pavement proper had been employed in place of the hot oil, this condition unquestionably would have been avoided; but the writer was attempting to obviate mixing method pavements, as he deemed it undesirable on country highways. The condition of this pavement, at the present writing, is entirely satisfactory since most of the objectionable features of the hot oil treatment have disappeared, although it would unquestionably be advisable to cover it with sand or gravel to absorb any surplus lighter oil that traffic and sun might draw to the surface.

The writer wishes to take issue with Mr. Howard, relative to the statement that clay adhering to the particles of gravel are a source of weakness to the pavement. As the gravel is taken from the bank it is true it may be covered with a film of clay. The material, however, receives much handling before it finally reaches the pavement. It is first loaded into carts, dumped on to barges, transferred to railroad cars and from the railroad cars carted in wagons to the mixing plant. Here it is placed in a revolving heater, the temperature of which is raised to at least 250 degrees F., and hot bitumen is added with still further agitation. Finally it is trucked to the scene of the work and compressed with a ten-ton roller. The writer believes that if this film of clay still adheres to the particle of gravel, no moisture, frost, nor shock will cause it to relax its hold sufficient to cause any disintegration.

There was built last year, under the writer's supervision 112,000 square yards of bituminous gravel pavement, yet at the present writing less than 45 square yards (0.0004 per cent) have disintegrated, which might happen to even a sheet asphalt pavement. This pavement cost on the average about 5 cents per square yard for 2½ inches of depth, which compares favorably with similar figures of mixing method pavement in other parts of the state. The writer quotes from a statement attributed to an acting Superintendent of Highways of New York as follows:

Inches.	Per sq. yd.
1½ California Asphaltic	\$1.20
2 Topeka Asphalt	1.20
2 Warrenite	1.30
2 Bitulithic	1.60

Using the lowest average of \$1.20 per square yard, it is evident it would have cost the State of New York \$40,600 more for a 2-inch pavement of graded stone covering the same yardage than for the gravel. From observations made by the writer of mixing method pavements laid in New York and vicinity, using uniform stone mixture, he would venture to say that the percentage of disintegration is as great, if not greater, than in the bituminous gravel pavement laid last year under his supervision. As a specific example reference may be made to the shell road in the Borough of Queens.

The writer has not changed his opinion relative to the general design and utility of the bituminous gravel pavement, and he again suggests that highway engineers investigate this form of construction, especially where gravel containing cementitious qualities may be obtained.

Yours truly,

SPENCER J. STEWART,
Assoc. M. Am. Soc. C. E.

ASPHALT REPAIRS IN ST. PAUL.

In the 1912 budget of St. Paul, Minnesota, \$15,000 was appropriated for the purchase of equipment for making street paving repairs, and in February bids were asked for a portable asphalt plant, and later other equipment was purchased. The entire plant comprises a Warren Brothers portable asphalt plant, an 8-ton asphalt steam roller, a scarifier, Lutz surface heater, fire wagon, gyratory stone crusher, two portable melting kettles, six 2-yard steel lined asphalt wagons, four ¾-yard concrete spreaders, a set of curb cutter's tools, nine asphalt rakes, testing scales, and the necessary small tools.

The plant was put in operation on April 25th and during the season was working a total of 92 days. In this time 19,428 square yards of asphalt pavement were turned out, 15,040 of this being "cut out" work and the balance burner work. Of 5,459 square yards put in for paving contractors in repairing under guarantee, 2,363 square yards was cut out work and the balance burner work. A total cost of \$6,012.96 was collected from the contractors for this work. In addition, 2,902 square yards were put in for the street railway company and 1,636 for public service corporations. From the bridge building and repair fund was collected \$1,961.57 for asphalt repair on bridges, at \$1.65 per square yard.

Repairs to asphalt pavement out of guarantee and paid for out of the street and sewer fund, amounted to 6,981 square yards of cut out work and 1,293 square yards of burner work. This cost the city \$7,163.50, or an average of 86 cents per square yard.

The operating crew at the plant consisted of one foreman, one engineer, one tank man, four laborers and a night watchman. Four teams were employed hauling asphalt from the plant to the work. The street crew was made up of one foreman, one timekeeper, one roller man, two rakers, two tampers, one smoother and one cement man laying new pavements, and two shovelers, six scrapers and two teams removing the old paving.

The principal expenses were as follows: Labor in operation of plant, \$2,535; unloading material, \$255.62; removing old paving and putting in new, \$7,116.48; hauling asphalt, \$780.40; shelter shed and miscellaneous, \$178.98; a total of \$10,866.48. The materials cost \$12,947.40, of which the principal items were \$6,507.46 for Trinidad Lake asphalt, \$1,927.61 for fluxing oil, \$1,142 for sand, \$859 for fuel oil, and \$420 for coal; \$465 for stone dust, \$306 for crushed stone and \$297 for cement. A royalty of \$382.48 was paid for the use of the surface heater. On January 1, 1913, there was on hand \$1,097 worth of material, leaving the total value of labor and material used for the year \$22,716.77. In figuring the above costs no depreciation of plant or interest was charged, but all small tools have been charged against the work.

NEWS of the MUNICIPALITIES

Current Subjects of General
Interest Under Consideration

by City Governments
and Department Heads

ROADS AND PAVEMENTS

Harrison Street Paving Under Way.

Council Bluffs, Iowa.—Since the completion of the street car line extension on Harrison street, the work of paving that street from Hyde avenue north to Fleming avenue has been rapidly progressing. E. A. Wickham, the contractor in charge of the paving, has finished laying the concrete base on the north side and the paving of that side will probably be finished during the next week. The street is being paved on one side at a time so as to permit traffic on the street during the entire period.

U. S. Helps to Build Ohio Road.

Columbus, Ohio.—Restoration of the old National road through Ohio from Wheeling, W. Va., to the Indiana line, is the ambitious project upon which Governor Cox has decided. The first step has been taken in reconstructing the road from Columbus to Zanesville, through the aid of \$120,000 donated by the Federal Government. The project is the first in three-quarters of a century in which the National Government has aided.

French Roads Numbered.

Paris, France.—Paris has adopted a reform which has the double advantage of costing the nation nothing and of being invaluable to the tourist. Every highway throughout the land is to be given a name and number, and these denominations are to be immediately painted on all kilometre stones and government road-direction posts. It appears but a slight reform, but in reality it is one of immense importance to automobilists. All the roads in France are divided into classes: National highways, departmental highways, chemins de grand communication, etc., and each road bears a number. This classification is made use of by the authorities, who never speak of a highway as the road between Dieppe and Rouen, but as "National Highway No. —." To indicate the position more accurately, they have only got to add "Kilometre stone No. —" or "Hundred metre stone No. —" to make it possible for any person to find a desired spot as easily as he would pick out a numbered house in a numbered street.

Granger Plans Celebration.

Granger, Texas.—Under the auspices of the Granger Business Men's League, Granger will hold the second annual good roads and street pavement celebration July 24, 25 and 26. The different committees have been appointed and the entire citizenship of Granger is preparing for the big event, which promises to exceed all previous entertainments. In the way of amusement there will be a gigantic street parade given by the business men, automobile races, baseball games, etc., and the best carnival company that can be secured.

\$755,000 for Ashokan Roads.

New York, N. Y.—New Yorkers will drink water from the Catskills by the first of next January, Charles Strauss, president of the board of water supply, said, when the Board of Estimate approved the authorization of an expenditure of \$755,000 for roads around the Ashokan reservoir "As soon as those roads are finished we can store water in the reservoir and let it flow to the Croton reser-

voir and then to New York City," said the board president. "Had the Board of Estimate not voted the \$755,000 in corporate stock, the people would have been prevented for a year longer from receiving the water which has cost them so much." More than seventy miles of roads in Ulster County will be submerged when the Ashokan basins are filled. To make up for their loss, it was contracted that roads should be built around the lake by the city. The delay in the construction hinged on the question whether the city or the State would have to maintain them. That question has not been settled, but the arguments for the use of next fall's rain supply induced the Board of Estimate to pass by that difficulty.

Boone Highway Improved.

Columbia, Mo.—A gang of 300 men and 80 teams from Columbia, headed by County Highway Engineer George Ridgeway and P. S. Quinn, put the State highway in first-class shape from the Callaway line west to the Howard County line. The Columbia Commercial Club raised money to hire the workers, and others volunteered. The Columbia Automobile Club furnished transportation to and from work. Brush was cut, the road dragged and smoothed, and ditches cleared. The day was declared a holiday by the mayor of Columbia, W. P. Moore, and all banks closed for the day.

Highway Commissioner Asks for Wide Roads.

Chillicothe, Mo.—State Highway Commissioner Buffum has written the highway board setting out some things to be required before a road may be designated a county seat highway. First of all they must be direct as possible with as few turns as needed. He wants all roads at least forty feet wide and graded so that a drag may keep them in shape. One of the best requirements is that they must have ditches and branches crossed by concrete culverts. Several routes or proposed county seat roads are already going after funds to build permanent culverts.

Patented Materials May Be Used on State Roads.

Albany, N. Y.—The new highway law does not prohibit absolutely the use of patented material in highway construction work, according to Attorney General Carmody. The Attorney General, in an opinion rendered at the request of Commissioner Carlisle of the State Highways Department, holds that patented material may be used "under such circumstances that there can be a fair and reasonable opportunity for competition, the conditions to make this to be prescribed by you as commissioner, and in making such conditions, you are the judge and can use your sound discretion and judgment."

Experiment With New Paving Material.

St. Augustine, Fla.—Much interest is being taken in an experiment which is being made with a new paving material, which, if it proves successful, will be the means of greatly reducing the cost of city street pavements as well as county roads. The experiment is being conducted by the C. S. Young Construction Company of Jacksonville, and it has secured permission from the city authorities to conduct the experiment on a section of Hypolite street at the intersection of Cordova street. This is located in the heart of the city, which is heavily traveled, and will make a good test for the new paving material.

This new material is known as asphaltic surface pavement, with a soilamies base or foundation, and the hard surface is secured simply by mixing this special cement with the ordinary street material. It is claimed that this combination will make a solid mass, forming a good, smooth surface of great hardness and urability. A small section of Hypolite street was worked over, the cement simply being mixed in with the ground shell and dirt, the former material of the street. The county authorities will also watch the experiment, as they are looking for a good road material. It is said that considerable time must be given for this material to thoroughly set and harden, and for this reason Hypolite street will be closed to traffic for several days, or perhaps a week. It is claimed that this new paving material can be laid at a cost of less than \$1 a square yard.

City Paving Work Progressing.

Kalamazoo, Mich.—The new Mixing plant recently installed by the Globe Construction Company on its paving contract on Fourth street has been the means of laying from 700 to 1,000 yards of pavement daily, and City Engineer Andrew Landerink is of the opinion that as a result of the increase in the amount of pavement laid that the work which has been decided on for the year will be completed before snow flies. The top of the Third street pavement has been laid and just as soon as the work is completed on Fourth street other work will be undertaken. City officials are determined not to carry any work over this year for the next council to arrange for, and the city engineer and others have been given orders to hustle the work along as rapidly as possible so that any delays that might result later on could be easily arranged for without crippling the paving work of the city in any way. More miles of pavement will be laid this year than ever before, it is claimed.

Convicts Start Work on Road.

Newton, N. J.—In charge of two deputy keepers, twelve short-term convicts from the State Prison in Trenton arrived in a big auto van at the convict camp about two miles below Newton. They will be engaged in widening the Newton-Stanhope road, which has been taken over as a part of the State "blue road" system, designed to connect important centers. Accompanying the load of men was Keeper Thomas B. Madden, of the State Prison; State Engineer E. M. Vail and Deputy Keepers Matthew Hayes and William H. Wickham. The deputies will guard the convicts. As the force is increased the number of guards will be increased to five and Mr. Hayes will be in command.

Alleys Improved in Washington.

Washington, D. C.—Eighty-five alleys have been opened or improved in the District of Columbia since 1900, at a cost of \$195,692.60. Of the number but six have been converted into minor streets. This, in brief, is the history of alley improvement work in the District of Columbia during the past thirteen years, according to figures made public by Auditor Alonzo Tweedale. More alleys undoubtedly would have been converted into minor streets but for the provision of the law requiring that the entire cost in such undertakings be assessed against adjoining and abutting property as benefits. Mr. Tweedale believes that the law should be amended giving discretion to condemnation juries in the matter of assessments for benefits. He pointed out that there is a reimbursable fund amounting to \$99,876, which could be used for cleaning up the city's slums if the law were amended in this particular. It also is the opinion of the auditor that a survey of the alley situation should be made and appropriation requested with which to carry out improvements suggested. He stated there is prospect of the District having more available revenues next year, due to the fact that there will be only a small payment to make on the floating debt, and that it is possible this condition might pave the way to solution of the alley problem.

SEWERAGE AND SANITATION

Sewer Started.

Oneida, N. Y.—The work of building and repairing sewers in several streets under the direction of Charles Fitzgerald, commissioner of public works, is progressing rapidly. A sewer 900 feet long in Cedar street has been started. The Brooks street sewer, which has just been completed, required the laying of 255 feet of mains. The contract for installing the trunk lines in these two streets was awarded to Contractors Nixdorf and Descenzo. The break in the Elizabeth street line between Walnut and Main streets, has been repaired after two months' work. The project has cost the city nearly \$2,000, it is claimed. The Elizabeth street main drains the entire southern part of the city and in order to secure the proper level it was necessary to lay this sewer eighteen feet underground. The work of repairing it was therefore made both difficult and expensive.

Stops Municipal Bakery.

St. Louis, Mo.—St. Louis municipal bakery in the Industrial School, which for eleven years has supplied all the bread used in the city's eight principal penal and eleemosynary institutions, has been shut down. This has been ordered by Mayor Henry W. Kiel, who contends baking is not a proper instruction for the city's wayward boys and that work in the bakeshop is not healthful for them.

In the eleven years of baking at the Industrial School, 12,386,000 pounds of bread have been turned out. The school has supplied all city institutions except for two months last winter, when a diphtheria epidemic caused a shutdown of the plant. An average of 3,200 pounds a day is consumed by the city's wards and prisoners. Mayor Kiel, on a recent trip to the Industrial School, found conditions in the bakeshop unsanitary. Six or seven bakers are employed, but the school lads do much of the work. Since the school soon is to be moved to Fort Bellefontaine on the Missouri River, where a farm has been purchased, the bakery output would have to come from another source in the next year. The mayor said it is planned the time the boys have spent in the bakery shall be devoted to studies and outdoor work in future.

WATER SUPPLY

Face Water Famine.

Suisun, Cal.—Unless something is accomplished to remedy conditions the town will be facing a water famine within a short time. The wells from which the municipal water supply is now obtained are reported to be failing rapidly as the dry season progresses and there is practically no water in the storage reservoir. Some weeks ago the town trustees made a contract with a man to sink additional wells, but his drilling outfit broke down before he made any progress and he has thrown up the contract. The contract has been awarded to another man, but it is feared that the water supply will give out before the well can be sunk.

Town Rejects Offer of Its Water Company.

Hailey, Idaho.—The city council has rejected the proposition of the Idaho State Life Insurance Company to sell the present water system for \$30,000. The rejection was made on the report of Raymond Guyer, engineer, who was employed to examine the water supply and pipe line system. According to the report it would cost the city \$40,000 above what they would pay the insurance company (\$30,000) to put the system in proper condition.

Akron on Verge of Water Famine.

Akron, Ohio.—Akron is staring into the face of a water famine, which under present conditions is inevitable, according to Water Engineer and Expert E. G. Bradbury. Water enough to supply the city for two months, making no allowance for evaporation or leakage, is all that is contained in the storage lakes south of the city. More water is being used from the lakes daily than is flowing in, and rains at this season of the year would be of little advantage. "The situation is indeed critical," declared Expert

Bradbury. "It is evident that many people do not appreciate the seriousness of it all, but they must co-operate with the city. The water department has not cautioned them to be economical with the water, just for the mere pleasure of doing so. It's just this: A little water now, or none after a while. The present situation is the result of the flood last spring. I knew and predicted at that time, that unless repairs were made in ten days to save the spring rainfall, there would be a serious shortage during the summer. We went to Columbus and urged the State authorities to make repairs at once, convincing them that it was an emergency. They did, proceeding without legislation, but it was almost six weeks before the repairs were made. That prevented us saving the spring rains. Rainfall now soaks into the ground and we receive but little benefit from it. A great deal is also used by vegetation. We are now using water from the west reservoir and Turkeyfoot lake. It is only possible to lower Long lake by one foot, and when this is done our supply will be exhausted. It will be the worst state of affairs imaginable, and I hope the people will economize."

New Water Main Near Completion.

Grand Haven, Mich.—Contractor Derrow, who has charge of the laying of the water main from the big well on the shore of Lake Michigan to the pumping station, announces that the job will be finished in three weeks, and that the unlimited supply of lake water in the new well will furnish an abundance of good drinking water. "It has been a slow, tedious job all the way through," he said. "We could not put any more men on the force, because under the circumstances it would be useless. All the work had to be done under water, and the caulking had to be done by a diver. But it was the quickest and cheapest way out of it, so we acted accordingly."

Will Take Precaution Against Typhoid Epidemic.

Richmond, Va.—In response to the demands of the State and city health authorities and physicians of Richmond, the Administrative Board has voted unanimously to have Acting Superintendent of Water, William Lawton, Jr., install a hypochlorite plant at the Settling Basins. Superintendent Lawton has ordered a large quantity of hypochlorite of lime from Philadelphia and made arrangements to give the Settling Basin water its first treatment of the germicide, when Richard Messer, the State Health Department's sanitary engineer, arrives in the city. Four additional cases of typhoid fever have been reported by inspectors of the Health Department, bringing the total number of cases received during the month of June to thirty-three. During the month of June, 1912, there were reported only eighteen cases of typhoid in the city. The new cases tabulated are located in widely separated sections of the city. There have been five deaths from typhoid this month, and forty-nine cases are now on the Health Board chart. Dr. Levy, while blaming the water for a portion of the present fever outbreak, is of the opinion that at present it is practically free from contamination.

Reservoir Work Stops.

Ogden, Utah.—Work on the million-dollar reservoir on the South Fork of the Ogden river has been abandoned by the construction company, which has filed a lien against the Ogden River Reservoir Company for \$29,000. The work was being done by the American Construction Company, which took over the contract from the Gillis Construction Company. It is said that the contract calls for excavation of the rockwork in the core wall trench for \$1 per cubic yard below the level of 5,280, and for 70 cents per cubic foot above that level and, when the reservoir company signed up the contract with Ogden to build the dam jointly, it is said that the construction company changed the price from \$1 to \$7 and from 70 cents to \$3 per cubic yard and the amount of the lien is supposed to cover the difference between the contracted price and the new price set.

William Glasmann, president of the Ogden River Reservoir Company, says that the lien will not stop the work on the dam as a new company will take up the work where the last one left off.

Dover Water Break Repaired.

Dover, N. J.—The break at the pumping plant of the municipal water works having been repaired, fears of a water famine have been somewhat allayed. The water commissioners, however, have advised that consumers discontinue all lawn and street sprinkling for the present. According to the notice issued by President John Egbert, of the Water Board, the gravity supply is decreasing rapidly, there being but eighteen inches of water in the low service reservoir.

Refuses to Allow Town to Change Water Service.

Woodbury, N. J.—The state water supply commission has denied the application of the town of Woodbury for permission to install a new and additional source of water supply. The town, at present is supplied by surface water, and it was proposed to put in a system involving a sub-surface supply. The board decided that the present supply is adequate and that proper policing of the watershed and the installation of a filtration system would insure the pure and wholesome quality of the water. The board recently gave a hearing upon the application at Woodbury.

Bryan City Plant Declares Dividend.

Bryan, Tex.—The municipal water, light and sewer plant declared dividends for the month of May, after all expenses were paid, as follows: Water department, \$247; light department, \$472.25; sewer department, \$155.45; total profits, \$874.70. The city is now enjoying the best service in its history and saves several thousand dollars yearly in free street sprinkling water, etc.

Water Supply Is Ample.

Charlotte, Mich.—Some of the hottest weather in years and a long drought have not endangered Charlotte's water supply in the least for, although the danger mark is four feet, the wells show 16 feet of water at the present time, despite the fact that 800,000 gallons of water have been pumped in 12 hours during the hot spell, a record at the waterworks.

Water Plant Deranged.

Larned, Kan.—The failure of valves to hold back the water in the city water system temporarily deranged the water service. The city was connecting up two new deep wells to pump directly into the mains so that the summer supply would be sufficient to meet the demand. It took a day and a night of work tightening up the valves before the water could be held back so that the connections could be made.

Pure Water for Four Towns.

Thibodaux, La.—The question of pure water for Napoleonville, Thibodaux and Houma by filtering the Mississippi River at Donaldsonville is receiving quite a large amount of attention. The industries appreciate the change, for the machinery, boilers, etc., are eaten by rust by the saline water used from the bayou. Mayor Trone, however, is working on a plan which he expects to divulge in the near future, whereby pure filtered river water can be furnished the four towns at little expense.

Temporary Dam Work Begins.

Fort Worth, Tex.—Concrete work on the temporary dam of the West Fork Reservoir of the city has been commenced. When completed, the dam will impound 1,000,000,000 gallons of water, which insures the city, according to the reservoir committee of the City Commission, against a possibility of a scarcity of water during the coming summer, for in case the artesian system proves inadequate to meet the summer demands, then the water impounded by this dam will be brought down the channel of the river to the filtering station and be pumped into the city mains at that point. It was expected that the dam would have been completed two weeks ago, but on account of rains and consequent high water in the river channel, it was impossible to proceed with the work.

May Get Water Supply from Kentucky City.

Winchester, Ky.—A surveying party under Engineer Sam H. Rutledge is running a line from the Government lock and dam on the Kentucky river at Ford down the river to Howard's creek and thence to the present pumping station of the Winchester Water Company. It is reported that the Water Company is preparing to extend its lines to Kentucky river at an early date, in order to meet the additional demand caused by the rapid growth of Winchester and its manufacturing enterprises. Several engineering obstacles will have to be overcome in constructing the new line owing to the fact that Winchester is nearly 600 feet higher than the water level of Kentucky river, but it is thought a powerful battery of force pumps will be equal to the requirements especially if a relay station is established at the present group of reservoirs, four and one-half miles from town. The new plant probably will necessitate an additional investment of more than a quarter of million dollars.

Jersey City Given Right to Join Up Water Lines.

Jersey City, N. J.—Permission has been given the Jersey City water department by the Hudson County Board of Freeholders to open Belleville turnpike, the dividing line between Bergen and Hudson counties, for the purpose of making a connection with a water main. There had been a question as to the right of the water department to make the tap without first obtaining the privilege from the Hudson County board. Such a permit had been obtained from the Bergen County board. The town of Kearny, it is said, will oppose every effort of the Jersey City Water Department to supply the new West Hudson Park with water, although a contract has been made by the Park Commission with Jersey City to furnish the supply. The water department claims the only reason it has for making a tap in the Belleville turnpike main is to give the Pennsylvania Railroad shops a larger supply.

STREET LIGHTING AND POWER

Rebuilding Light Plant.

Roff, Okla.—Superintendent Frank Matthews has a force of workmen putting up the new machinery for the municipal light and water works plant, to take the place of one that was destroyed by fire a few months ago. The building and machinery is all new. When completed this will be one of the best equipped plants of the kind in this part of the State.

May Use Electric Pumps.

Hartford City, Ind.—Electric pumps are to be installed in the city's municipal water plant by the American Gas and Electric Company in a trial to prove that water can be pumped cheaper with electricity than steam. If the test proves the claims of the light company it is probable the council will purchase the pumps, maintaining the present new battery of boilers as an emergency plant. During the trial water will be pumped direct into the mains to enable the city to empty the big reservoir so that workmen may enter it, clean out the sediment and make needed repairs. If electric pumps prove practical the city will not have to construct a new cistern.

Carnival Marks Turning On of New Lights.

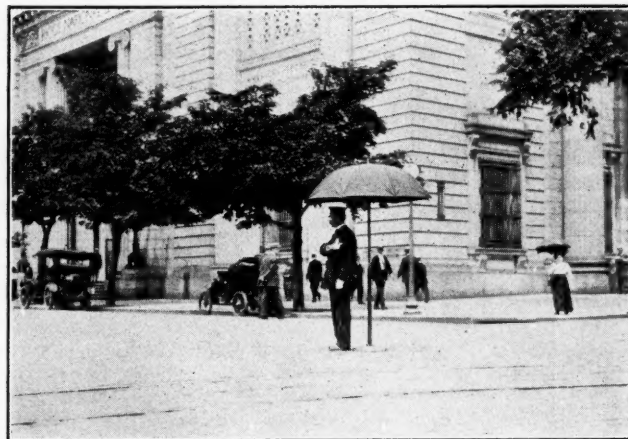
Minneapolis, Minn.—Mayor Wallace G. Nye pushed the button that inaugurated the new ornamental street lights on two blocks of Lake street at Bloomington avenue. The East Lake Street Commercial Club, instrumental in securing the lamps, directed the celebration. Features of the one-night carnival were fireworks, dancing, concert by a "rube" band, and a kangaroo court with Thomas P. Gleason on the bench. Alderman M. P. McInerny, as chief, and Verne Watson, Christian Eck and C. A. Hoover, as policemen, rounded up much business for the judge. Their victims paid fines ranging from 50 cents to \$1 for being caught. Police Chief Oscar Martinson attended to get ideas, but stayed on the outskirts of the crowd and escaped arrest. Wesley Pearson led the "rube" band of twenty pieces. An organ grinder with a "monkey" attached to a chain captured a few coins. Senator Manley

L. Fosseen and Harry McLaskey sold popcorn and others dispensed confetti and soft drinks. The lights are of the same variety that line the downtown streets and form the third link in a chain of lights proposed to line Lake street from Lake Calhoun to the Mississippi river. Similar centers have been installed at Nicollet avenue and Twenty-seventh avenue S.

FIRE AND POLICE

Umbrellas Provided for Policemen.

Washington, D. C.—Umbrellas as a protection to the policemen directing traffic have been provided in several cities and Major Sylvester has established one as an experiment at the intersection of 15th street, New York and Pennsylvania avenues. Major Sylvester thinks it also will assist occupants of vehicles in directing the course of travel. The chief of police thinks he soon will have umbrellas at all of the more important street railway cross-



Courtesy of Washington Star.

WASHINGTON CROSSING POLICEMAN SHELTERED FROM SUN'S RAY.

ings. Heretofore the police have had to stand on the streets in all kinds of weather without the slightest protection, and in severe weather it was absolutely necessary for them to get relief at intervals.

With Indianapolis providing foot warmers for the police in winter, Washington and Baltimore keeping their heads cool in summer, and Glasgow, Scotland, providing warm food and tea for policemen on duty, by means of electric heaters or hot plates placed in telephone signal boxes, the lot of the policeman should be a happy one.

The establishment of an island of safety at the intersection of New York avenue, 13th and H streets northwest is provided for in an amendment to the police regulations. Pedestrians, drivers of horses and persons operating automobiles have long regarded this intersection as especially dangerous. It is planned to erect a number of iron pillars to mark off a space where pedestrians crossing or waiting the arrival of street cars may stand without danger of being run over by vehicles. Vehicles will be required to move to the right of the space so marked in order to avoid possible accidents.

Copy St. Louis Police Plan.

St. Louis, Mo.—Reorganization of the New York Police Department is planned along the lines of the St. Louis Bureau, so far as the efficiency and merit system is concerned, according to advices received by Chief of Police Young. The decision to adopt the St. Louis plan in New York was made on a report of Alfred H. De Roode, a New York lawyer and former secretary of the Civil Service Reform Association, who was delegated to devise means of bringing the department to a basis of merit. In his report he recommends the St. Louis plan to the exclusion of all others. Under the plan, demerit marks take the places of fines for minor infractions. Good work is rewarded with merit marks. In St. Louis, a man may automatically remove himself from the department by dropping below the required number of merit marks.

MOTOR VEHICLES

More Fire Autos in Service.

Philadelphia, Pa.—Three more of the special motor cars that have been provided for the battalion chiefs of the Fire Department have been put in commission. There are now in service five such fire vehicles and one department chief's car. Director Porter, of the Department of Public Safety, said that during the coming week the department will advertise bids for additional fire apparatus, but just what this will include he was not ready to say. As soon as all the improved fire vehicles have been received, the director said, a fire parade will be held. This probably will be next October.

Fire Apparatus Wrecked.

Southampton, N. Y.—There was great consternation among members of Southampton Hose Company No. 1 one morning recently when it was ascertained that during the night the motor hose truck had been taken out of its house by unknown parties and almost completely wrecked. The truck had been at Bridgehampton during the evening. One of the members of the hose company says whoever had the truck was either inexperienced in driving or was intoxicated. The truck was recently acquired by the company, and it took much pride in it. A meeting of the company will be held for the purpose of making an investigation into the matter.

Demonstrate Tractor.

Boston, Mass.—Several manufacturers of tractors for city fire departments are busy in interesting the Boston fire department officials in their products. A Providence concern sent a fully equipped motor-driven fire engine over the road, the trip taking only three hours, and the machine was driven through the business district, stopping at various points and permitting the citizens to examine it. The driver was accompanied by Eugene M. Byington, superintendent of the Boston fire department repair shop. The machine stopped on School street, in front of City Hall and the Mayor went out to inspect it. Fire Commissioner Cole is not ready to say that the tractor for fire engines is entirely suitable for Boston's use, but included in the \$300,000 recommendation recently sent to the Mayor for motor equipment, provision was made for the purchase of eight or ten tractors. They cost about \$4,500 each, and can be affixed to the engines now in the department.

St. Louis Adds to Its Automobiles.

St. Louis, Mo.—The automobile equipment of the City of St. Louis is growing at a rapid rate. The past week the addition of no fewer than twenty-nine machines was provided for. Five of these were Baker Electric trucks, which were bought by the Board of Education for use in delivery service between the office of the Board of Education supply commissioner in the Board of Education Building and the schools of the city. A garage for these machines as well as for other automobiles in the service of the board has been provided on School street, just east of Grand avenue. The board has its own power plant in the Central High School, a short distance from the garage, and this plant will be used in charging the batteries of the electric trucks. Twenty-four automobiles were bought by City Supply Commissioner Joseph B. Thomas for the service of city departments, the total expenditure having been \$18,544. The new equipment includes sixteen Ford runabouts to go into the service of the building commissioner, the street commissioner and the sewer commissioner, replacing in part old equipment; four five-passenger Ford touring cars, to serve, respectively, the superintendent of the Industrial School, the city forester, the building inspector and the superintendent of the Fire and Police Telegraph; two Stutz four-cylinder six-passenger touring cars, 1914 model, to serve the street commissioner and the supply commissioner; two five-passenger four-cylinder Cadillac touring cars, to serve the building commissioner and the water commissioner. Much of the new purchase replaces antiquated cars, which are disposed of as a condi-

tion of the new purchase. The present automobile equipment of the city includes, exclusive of the machines used by the police and the Board of Education, thirty-five runabouts, five touring cars, eight ambulances, four automobile fire engines and four Fire Department service trucks.

New Apparatus Sent to Lomita Park Fire.

San Mateo, Cal.—Motor-driven fire apparatus went to the aid of a sister city ten miles away, when flames threatened to wipe out Lomita Park, a residence section of San Bruno. Being without fire-fighting facilities, San Bruno appealed to San Mateo and Hillsborough, and in less than fifteen minutes the powerful auto chemical engines were on the scene. The run was made along the newly paved State highway, and the big machines laden with firemen reached a speed of fifty-five miles per hour. The fire broke out in the home of Louis Roberts, engineer for the Spring Valley Water Company, and quickly spread to the house of S. K. Frazer. Fanned by a stiff wind, the blaze threatened to destroy all the houses that were in its path. As the flames were leaping to the next house in line the fire apparatus from San Mateo and Hillsborough arrived, and in a few minutes the fire was under control. The run was the initial one for the Hillsborough Fire Department. After the fire was under control the San Mateo machine was sent back and Chief Walter A. Grant and Assistant Chief C. M. Hirschy took charge of the situation.

GOVERNMENT AND FINANCE

Norwalk Becomes City; Takes Eighth Rank.

Norwalk, Conn.—By a majority of 681, the consolidationists won in the special election on the question of merging Norwalk, South Norwalk and other component parts of the town of Norwalk into the city of Norwalk. The change will be effective the first week in October, when in the regular election officers of the new city will be chosen. The total vote in favor was 2,288; against, 1,607. The new city will, on the basis of population, rank eighth among the cities of the State.

Cheyenne Adopts Commission Form.

Cheyenne, Wyo.—Polling about one-third of its normal voting strength, Cheyenne, on June 24, adopted the commission form of government by a vote of 950 to 182.

New Plan Has Saved City More Than \$3,000.

Baltimore, Md.—Since the adoption by the city last October of the plan to deal with concerns allowing discounts for immediate payment of bills \$3,097.21 has been saved the taxpayers. So pleased, indeed, is Deputy City Comptroller W. T. Childs, who formulated the scheme, with the results that he will lay before the Mayor a proposition to submit to the heads of all departments a list of those concerns allowing discounts with instructions to confine their dealings with the listed concerns.

Bid for El Paso Bonds Rejected.

El Paso, Tex.—Only one bid was received for El Paso County's latest issue of \$350,000 in road improvement bonds. The bidder was a Chicago concern and the bid offered was to take the bonds at par and reserved the right to pay out the money only one requisition of the engineer as the work progresses. The bid was rejected and new bids will be called for. Stringency of the Eastern money market is taken as the reason for the lone bid.

Figures on Ten-Point Tax Rate Raise.

Elizabeth, N. J.—Comptroller John S. Sauer's estimate of the expense for the conduct of city affairs has been submitted to the council and referred to the finance committee. It provides for an outlay of \$1,100,000, and will mean a tax rate of \$1.76 per \$100 of valuation, an increase of ten points. For the purpose of looking into the matter of the purchase of a municipal electric lighting plant when the city's contract with the Public Service Electric Company expires next year, council passed a resolution appropriating \$250 for the engaging of Runyon & Cary, engineers, to investigate.

STREET CLEANING AND REFUSE DISPOSAL

Street Sweepers Ask More Pay.

Chicago, Ill.—Two hundred Poles, Lithuanians, Greeks and laborers of other nationalities, First Ward constituents of "Hinkey Dink" Kenna, laid down their brooms and declared they were through trying to make a "spotless town" out of the First Ward, unless they got more pay. The brooms were stacked in a heap and the "white wings" gathered in Grant Park where speakers voiced a demand for \$2.50 a day. The street sweepers now get \$2 a day. The city authorities made vain efforts to get the men to return to work pending a settlement. Later in the day they asked "Hinkey Dink" to act as arbitrator.

Garbage Plant Burned Down.

Morgantown, W. Va.—Morgantown's city garbage plant, which has been the bone of contention between local citizens and Westover residents for several months, was burned to the ground by incendiaries, entailing a heavy loss. The controversy to have it moved out of Westover was carried up to the supreme court and back.

Work Started on Garbage Plant.

Washington, Pa.—Excavations have been started for the garbage furnace to be erected by W. K. Herbert, of McKeesport, on the borough farm at Arden. Wm. Pickett & Co., are the sub-contractors for the excavating and Luelien, Curran & McClain the carpenter work. W. K. Herbert will have charge of the brick work and the brick will be furnished by the Washington Brick Co. The plant will cost \$10,500, and will be a double unit, 20-ton incinerator. This will more than accommodate the garbage of the town and will provide for the future. It will not be necessary to use both units, but in case one breaks down or has to be shut down for a day or two, the other can be used, and the plant will run steadily. The furnace will be located just to the southeast of the present engine house of the sewage disposal plant. It will be housed in a substantial brick building, and the furnace will consume all manner of garbage. The sewer committee believes the furnace to be erected here is the most successful plant that could be obtained. The committee visited several and none came up to the Herbert furnace. Mr. Herbert is erecting a similar plant at the same contract price for the borough of New Kensington.

Oil for Vineville Avenue.

Macon, Ga.—Alderman Lee Happ, chairman of the street committee, states that the oil sprinkler will be assigned to Vineville avenue next week. The city has purchased 40,000 gallons of oil for sprinkling on the unpaved streets in the business and residential sections. However, the city only has one sprinkler, to be used both for water and oil, and in consequence it takes considerable time to visit all of the streets where oil is desired.

Garbage Disposal Plant Nears Completion.

Erie, Pa.—Within three months Erie's new garbage disposal plant will be in operation, City Engineer Briggs believes, and residents of the city will be furnished a garbage disposal service without a superior in the state, it is expected. The building has been completed and workmen are now installing the machinery which will dispose of all the refuse in the city. The plant, which is six miles south of the city, has been built to serve the needs of the municipality for many years to come. The building is built entirely of brick and is erected close to the tracks of the P. & E. Railroad, which will haul the garbage from the city in huge tanks to the plant where it will be destroyed by fire. All rubbish will be burned and cans and similar articles which find their way into the garbage boxes will be sold. Two furnaces will be erected on the first floor of the building, the floors, and there are two of them, are both built of cement so they can be readily cleaned. Each furnace is 10 feet wide and 10 feet high. In the top of each are seven holes through which the garbage will be dumped. As the garbage is emptied into the furnace it passes through three

grates and is reduced gradually to ashes in a big pit below the furnaces. The fine ashes are forced through a screen and will be sold as fertilizer and the can and similar refuse is dumped into an adjoining gully and will be sold. The collection system will be most thorough, officials say, and all garbage is collected by the city without cost to the residents. When a wagon has collected a load it goes to the loading station and the refuse is dumped into cars which go to the disposal works. The tracks of the railroad run directly into the plant and two cars can be accommodated at one time. By means of an overhead trolley system the tanks are taken to the different furnace openings and their contents dumped into the fire. Fifty tons of rubbish can be handled in ten hours by both furnaces. So sanitary will be the arrangements in the building that as soon as the tanks have been emptied they are immersed in cauldrons of scalding hot water to cleanse them before they are returned to the railroad cars. Each tank holds a ton of garbage and weighs 1,100 pounds. Exclusive of the wagons, mules and harness, the garbage disposal plant, the land and equipment cost the city approximately \$40,000. The city engineer department has had direct charge of the erection of the plant and Harry C. Crouch has looked after the engineering work. Unless some unforeseen accident happens the plant will be ready for operation by the last of September or the first of October, and the free collection of the garbage of the city will then be started.

RAPID TRANSIT

Cars Operated by Hydroelectric Power.

St. Louis, Mo.—Electricity generated by water power at the dam at Keokuk, Iowa, has been turned into the wires of St. Louis and two-thirds of the street cars in the city are propelled by the new current. By the end of the week practically all the street cars, motors and electric lights in St. Louis will be operated from the new hydroelectric plant and the city will be the largest one in the country to be thus supplied.

Commissioner Returns from Europe with Information.

Detroit, Mich.—John F. Dodge, Street Railway Commissioner of Detroit, who has been abroad for three months studying municipal ownership in England, Scotland and Ireland, on his arrival in New York, was met at the pier by Oscar Marz, Mayor of Detroit. A campaign is on in Detroit looking to the city ownership of street railways, and it was to obtain facts backing up such a proposal that Mr. Dodge went abroad. He declared that his trip had been successful and that he would have many new ideas on the subject to submit to the people of Detroit. Both Mr. Dodge and Mayor Marx believe that Detroit soon will purchase and operate the street railways.

Lincoln Lowest in Car Fares.

Lincoln, Neb.—With three short interurban lines and two regular street railway systems operating in cities of Nebraska, Lincoln enjoys the lowest electric car rate in the state, according to a report made public by the state railway commission. The average fare of the Lincoln Traction Co. was 4.34 cents, while the average on the lines in Omaha was 5.16. The excess in Omaha resulted from the charging of 10 cents on some of the suburban lines. The Omaha Traction Co. collected 51,000,000 fares during the year 1912, while the Lincoln lines collected 11,000,000 fares.

Municipal Line Complete.

San Francisco, Cal.—With Mayor Rolph present as ex-officio motorman the first regular car was run June 25 over the completed beach-to-ferries municipal electric line. The city authorities and their guests filled the mayor's car and a second one. A portion of the line has been in operation for some months.

Plan to Control Airships.

Minneapolis, Minn.—The Minneapolis charter commission, engaged in preparing a new charter for Minneapolis, has drafted a section, advocated by a majority of the

board, governing the speed and conduct of airships. "We are drafting this charter to last a good many years," said one member of the commission, "and look forward to the things of to-morrow as well as the conditions of to-day. Within a few years airships will be plentiful and we will have to keep them from dumping refuse in our front yards whenever they might feel so disposed." One member of the commission declared such a section foolish. It has not yet been adopted by the commission.

MISCELLANEOUS

City Prisoners to Pull Weeds.

Pensacola, Fla.—The board of city commissioners have just announced that they have decided to put all male prisoners in the city jail to work pulling up weeds and otherwise cleaning up the different lots owned by the city. The prisoners will also be placed at work in the various squares and parks, where they will be used in pulling up weeds and assisting in the work of keeping these places clean.

City Loses Fight Against Big Railroads.

Jersey City, N. J.—The Court of Errors and Appeals affirmed the decision of the Supreme Court in favor of the Pennsylvania and the Erie Railroad Cos. in suits brought against them by Jersey City for emitting dense volumes of smoke in that city. The court said the Legislature authorized the railroad companies to emit smoke and the ordinance of Jersey City, under which the suits were brought, undertook to punish them, whether smoke was negligently emitted or not.

Twenty-seven Mayors Favor Sunday Baseball.

New York, N. Y.—A referendum vote taken among the mayors of 50 cities in New York state shows an overwhelming majority in favor of Sunday baseball, according to figures made public by William P. Capes, secretary of the conference of Mayors of the State of New York. Out of 32 mayors voting, 27 endorsed Sunday playing of the game, five were against it. In view of the vote a resolution has been sent to Governor Sulzer, requesting that he place the matter before the Legislature with a view to repealing statutes which prohibit professional baseball on Sunday.

Municipal Picnic Held at Seattle.

Seattle, Wash.—Seattle celebrated its first municipal picnic day, proclaimed a holiday by Mayor George F. Cotterill to give all city employees an outing, by a big street parade of the employees in all the departments of the city government, after which a picnic was held at Woodland Park.

Womens Club Donates Five Drinking Fountains.

Grand Haven, Mich.—Work has commenced on the installation of the drinking fountains donated to the city by the Woman's Club. They are of the latest improved design and will be connected with the water main, which, with the completion of the Lake Michigan well main in three weeks, will furnish an abundant supply of wholesome water. The fountains will be placed at convenient places all over the city. They will be placed at the corners of Water and Washington, Second and Washington, Seventh and Washington and Seventh and Fulton, and one at the cemetery.

Cambridge Arraigns Alcohol.

Cambridge, Mass.—Cambridge is apparently the first city in the Commonwealth to place posters generally to show the economic waste by alcohol. Mayor Barry has ordered the "long posters" so-called to be put in every public building and the park commission will place posters in every park and playground. The "long posters" published by the Boston Associated Charities, is addressed to "Citizens!" It states that the public thinks that only heavy drinking harms, but, as a matter of fact, experiments show that moderate drinking is a menace to health and an enemy to efficiency, that alcohol lowers vitality and opens the door to disease, that it is responsible for much insanity, poverty and crime. At the Massachusetts Gen-

eral Hospital, the use of alcohol as a medicine has declined 77 per cent. in eight years. The poster concludes as follows: "Commercialized vice is promoted through alcohol. Citizens, think! Arrayed against alcohol are economy, science, efficiency, health, morality—the very assets of a nation; the very soul of a people."

Tablet Tells Story of Historic Council Rock.

Youngstown, O.—In order to preserve the tradition of the historic Council Rock in Lincoln Park, Superintendent Lionel Evans and City Engineer F. M. Lillie have prepared a wooden tablet with gold letters telling the story as follows: "This rock, known as Nea-To-Ka, or Council Rock, is the second largest glacial boulder in Ohio. Tradition says that for generations the Indians held their solemn councils about this rock. Their last meeting was held here on their return from the slaughter of Braddock's troops in 1755. In some way they offended the Great Spirit. The angry deity passed over their council in the storm cloud leaving desolation in his path. Many of the Indians were killed by lightning and falling trees. The stone was broken by a bolt of lightning. The remaining Indians left the region in terror." It is the intention at some time to replace the wood tablet with one of metal.

Puts Ban on Deadly Drugs.

Chicago, Ill.—Aroused by unusually frequent suicides and accidental deaths from poisoning, three aldermen have introduced orders requesting the health committee to draft an ordinance prohibiting the promiscuous sale of deadly drugs. All were passed.

City Operates Ice Plants.

Cincinnati, O.—Two large ice plants belonging to the Cincinnati Ice Delivery Co. practically were commandeered by city authorities to provide relief for hospitals and charitable institutions affected by a strike of employees of ice plants. As a result, 20,000 tons of ice were made. Mayor Hunt obtained the consent of the owners of the plants to have them operated if he could and then called a meeting of the strikers and explained the seriousness of the situation. The men readily agreed to run the plants if the ice should be sold under city supervision.

Fatal Collapse of Municipal Bath House Bridge.

Lawrence, Mass.—Eleven children, all boys less than ten years old, were drowned June 30 when a wooden bridge connecting the Municipal Bath House with the river collapsed. There were fifty boys crowded onto the bridge when the flooring suddenly gave way. The bath house was owned by the city and the supports of the flimsy structure gave way. Medical Examiner Dow will begin an investigation to determine the cause of the collapse immediately. The boys had crowded onto the bridge waiting for the caretaker when the accident occurred. The bridge broke 15 feet from the shore and 6 feet from the bath house. The boys fell with the bridge into the river and several of the boys were crushed by the heavy timbers.

"Sunken Gardens" Planned for City.

Salt Lake City, Utah.—Salt Lake is to have three beautiful "sunken gardens" similar to the famous sunken gardens of California. This is the announcement that comes from city officials and the owners of one of the largest residence subdivisions on the brow of the east bench. Beginning at Thirteenth East and Ninth South a great natural ravine over 100 feet deep and from 150 to 210 feet wide winds its way in great beautiful curves for three-quarters of a mile eastward through Douglas Park toward the Wasatch foothills. The sides of the ravine are already heavily sodded and the soil is a rich, fertile loam, readily susceptible to cultivation for flower beds, miniature parks, shade trees, lawns and shrubbery. Several famous landscape gardeners have inspected this site and have pronounced it ideal for the purpose to which it has been dedicated. The entire ravine has been deeded to the city by the owners of Douglas Park with the provision that the

city establish immediately and forever maintain the ravine as a sunken garden. A winding drive for automobiles will be put in along the sides of the ravine overlooking the sunken garden, and this drive will divert into similar drives to be constructed along the sides of two other ravines in Douglas Park which are also to be converted into sunken gardens.

Twenty-Two Recreation Centres Opened.

Providence, R. I.—A new system of control of the playgrounds and recreation centres goes into effect when the "play season" for the youngsters of Providence officially begins. Greater efficiency of management through the centralization of authority and the increase of opportunity for the children is the result sought. There have, moreover, been added various playgrounds and parks to the system. By the bringing together under single control of all the playground activities, 22 recreation centres will be utilized. Those which are on park reservations will be open six days in the week, from 10 o'clock in the morning until 5 o'clock in the afternoon. Those established on school premises will be operated five days in the week, from 1 to 5 p. m. The public baths will be available six days in the week, from 1 to 5 p. m.

Fox Park Dedicated.

Laporte, Ind.—Fox Memorial Park was dedicated with 10,000 persons present. The park was given to the city by the five sons of Samuel and Fannie Fox, carrying out the wishes of the mother. The park is valued at \$40,000 and a natural amphitheatre and small lake are features. Mayor Darrow accepted the park for the city, and James E. Watson spoke, paying tribute to Mrs. Fox and her five sons, and saying that the protest against wealth is not a protest against those who obtain wealth honestly and use it justly.

City Employees to March.

Minneapolis, Minn.—A municipal parade, in which every city employee from the sewer digger up to the mayor will participate, is planned for August 8 by Alderman Chase, chairman of the council committee on public amusements and recreation. It is to be a forerunner of the annual municipal picnic, the date of which was set for August 9, at Antlers Park. Similar showing of the number of persons actually employed by a large city have been made in several eastern cities. More than 4,000 men are expected to participate in the demonstration. The city engineers' department alone will furnish 2,300 men, who compose its paving and sewer crews, the water department will furnish 400, the health department 100 and the other departments will bring the total up to practically 4,000 men. On August 9 these employees with their families will go to Antlers Park for their annual picnic. County employees will be invited. The total attendance is expected to reach nearly 10,000.

Ornament Street With Floral Vases.

Dayton, O.—Fifty flower vases are being placed along South Brown street from Oak street to Irving avenue and are to be filled with flowers and ferns.

The vases will cost, with the flowers, about \$650. This money was raised by the South Brown Street Improvement Association among the residents, property owners and business men along the street. The idea is original with Albert A. Kramer, the president of the association. He exerted his utmost to make the scheme a complete success, and he has achieved a wonderful victory. Through his efforts he induced the majority of business houses to put out bay trees and flower boxes as well as getting them to remove rubbish cans, and other unsightly objects. The vases are placed three to a block. It is expected that the resident in front of whose place the vase sets shall take care of the flowers during the season. Plans are now being laid for an endowment fund of \$3,000, the interest from which will keep the vases filled with flowers during the summer.

LEGAL NEWS

A Summary and Notes of Recent Decisions— Rulings of Interest to Municipalities

Increase of Indebtedness—Ordinances.

Egan v. Borough of Claysville et al.—The expression of desire by a borough council to increase the indebtedness of the borough may be included in the ordinance which provides for the submission of the question to a vote of the electors, and does not require a separate ordinance.—Supreme Court of Pennsylvania, 86 A. R. 860.

Change of Street Grade—Harmless Error.

Kindred v. City of Philadelphia.—In proceedings to assess the damages to plaintiff's property from the change of a street grade, the erroneous admission of evidence of the number of yards of fill required to bring plaintiff's land to the level of the newly established grade was harmless, where such evidence was not relied on by subsequent witnesses testifying as to the property's depreciation in value, and did not influence the verdict.—Supreme Court of Pennsylvania, 86 A. R. 873.

Increase of Indebtedness—Ordinance.

Storch v. Borough of Lansdowne.—The title of an ordinance reading "An ordinance for the increase of the indebtedness of the borough * * * in the sum of \$75,000, and further providing for a special election to authorize the same," was sufficiently full and specific, and not misleading.—Supreme Court of Pennsylvania, 86 A. R. 861.

Injury to Employee—Contributory Negligence.

Wise v. City of Philadelphia.—Where an employee of a contractor was killed by being struck by a descending elevator while repairing an air cushion in the elevator shaft in a building owned and controlled by the city, and the accident was due to his want of care in exposing himself to a manifest danger and not to any negligence in the operation of the car, the city was not liable.—Supreme Court of Pennsylvania, 86 A. R. 862.

City Taxes—Cloud on Title.

Roe v. Mayor and Aldermen of Jersey City.—Equity will not take jurisdiction under a bill to remove a cloud on title to determine the validity of city taxes and assessments nor to enjoin the collection of such taxes.—Court of Chancery of New Jersey, 86 A. R. 815.

City Warrants—Notice of Invalidity.

Rankin v. City of Chariton et al.—All persons handling city warrants were charged with constructive notice of the fact that the city issued the warrants in excess of the constitutional limitation so as to make them void.—Supreme Court of Iowa, 141 N. W. R. 424.

Icy Sidewalks—Jury Question.

City and County of Denver v. Rhodes.—A municipal corporation is under a duty to keep its sidewalks in a reasonably safe condition and must use increased care where unusually dangerous conditions exist. It is usually a question for the jury whether a city had notice of the unsafe condition of a sidewalk by reason of snow, ice, etc.—Court of Appeals of Colorado, 131 P. R. 786.

Streets—Liability for Injuries—Care Required.

Nicholson v. Town of Stillwater.—A town is not liable for damages for the death of one killed while driving over its road unless the commissioner of highways would have been liable for negligence because of not foreseeing danger of such an accident as happened and guarding against it by a barrier or other appropriate means.—Court of Appeals of New York, 101 N. E. R. 858.

NEWS OF THE SOCIETIES

Calendar of Meetings.

July 15-17.
UNION OF CANADIAN MUNICIPALITIES.
—Thirteenth Annual Convention, Saskatoon,
Sask. W. D. Lighthall, Hon. Secretary-Treasurer, 305 Quebec Bank Bldg., Montreal, Canada.

July 21-26.
IOWA STATE FIREMEN'S ASSOCIATION.—
Annual Convention, Perry.

July 22-25.
LEAGUE OF WISCONSIN MUNICIPALITIES. Annual Convention, Neenah, Wis.

August 5-8.
NEW YORK STATE FIREMEN'S ASSOCIATION.—Annual Convention, Brockton.

August 19-22.
INTERNATIONAL ASSOCIATION OF MUNICIPAL ELECTRICIANS. — Eighteenth Annual Convention, Watertown, N. Y.

August 25-30.
FOURTH INTERNATIONAL CONGRESS ON SCHOOL HYGIENE, Buffalo, N. Y. Dr. Thomas A. Storry, Secretary General, College of the City of New York.

August 26-28.
CENTRAL STATES WATER WORKS ASSOCIATION.—Seventeenth Annual Meeting, Cedar Point, O.—R. P. Bricker, Secretary, Shelby, O.

September 1-6.
INTERNATIONAL ASSOCIATION OF FIRE ENGINEERS. Forty-first Annual Convention, Grand Central Palace, New York City. James McFall, Secretary, Roanoke, Va.

September 9-13.
AMERICAN PUBLIC HEALTH ASSOCIATION.—Annual Convention, Colorado Springs, Col.—S. M. Gunn, secretary, 755 Boylston street, Boston, Mass.

September 10-12.
NEW ENGLAND WATER WORKS ASSOCIATION.—Annual Convention, Philadelphia, Pa. Willard Kent, Secretary, Narragansett Pier, R. I.

September 29-October 4.
AMERICAN HIGHWAY ASSOCIATION.—Annual Convention, Detroit, Mich. J. E. Pennybaker, Secretary, Washington, D. C.

October 7-10.
AMERICAN SOCIETY OF MUNICIPAL IMPROVEMENTS.—Twentieth Annual Meeting, Wilmington, Del.—A. Prescott Folwell, Secretary, 60 Union Square, New York City.

November 10-15.
UNITED STATES GOOD ROADS ASSOCIATION.—Meeting St. Louis, Mo. John H. Bankhead, president; J. A. Rountre, secretary, 1021 Brown-Marx Building, Birmingham, Ala.

December 9-12.
AMERICAN ROAD BUILDERS' ASSOCIATION.—Annual Convention, First Regiment Armory, Philadelphia, Pa. E. L. Powers, Secretary, 150 Nassau street, New York City.

Union of Canadian Municipalities.

The official program of the annual convention to be held at Saskatoon, Sask., July 15-17, is as follows:

Tuesday, July 15.

10 a. m. Delegates will register name and address. Introductions and informal reception. Meeting of the Executive, in the Mayor's Chamber.

2 p. m. Convention opened by the President, L. A. Lavallée, Esq., K. C., Mayor of Montreal. Address of welcome: His Worship Mayor Harrison, of Saskatoon; reply on behalf of the delegates. Presidential address: His Worship Mayor Lavallée, of Montreal, president of the Union of Canadian Municipalities. Report of the Honorary Secretary-Treasurer: A synopsis of the activities of the Union during the past year, W. D. Lighthall, Esq., K. C., ex-Mayor of Westmount, Que. Financial report of the Assistant Secretary: G. S. Wilson, Esq. Report of the Official Organ, "The Canadian Municipal Journal," Harry Bragg, Esq.,

M. J. I., Managing Editor. Reports from the Affiliated Provincial Municipal Unions: Union of Manitoba, R. Forke, Esq., Hon. Secretary; Union of British Columbia, H. Bose, Esq., Hon. Secretary; Union of Alberta, G. J. Kinnaird, Esq., Secretary; Union of Saskatchewan, W. F. Heal, Esq., Secretary; Union of Nova Scotia, Arthur Roberts, Esq., Secretary; Union of New Brunswick, J. W. McCready, Esq., Secretary. These combined reports give a complete review of the work accomplished by united action of public spirited men working in the interests of the public. Report on Resolutions passed at last convention, and the Special Meeting of the Executive at Ottawa.

Subject to arrangement of time, for presentation and discussion.

1. The Increasing Complexity of Municipal Government, His Worship Mayor Hocken, of Toronto.

2. City Development, His Worship Mayor Short, of Edmonton.

3. Report of the Royal Commission of British Columbia on Municipal Government, His Worship Mayor Gray, of New Westminster.

4. Under-Representation of Cities, W. D. Lighthall, Esq., K. C., Hon. Secretary, Union of Canadian Municipalities.

5. The Wants of Rural Municipalities, J. N. Bayne, Esq., Deputy Municipal Commissioner of Saskatchewan.

6. City Control of Water Front, His Worship Mayor Oliver, of Port Arthur.

7. Town Planning, C. J. Yorath, Esq., City Commissioner of Saskatoon.

8. The Improvement and Preservation of our Great Inland Waterways, T. L. Church, Esq., City Controller of Toronto.

9. Municipal Voting, by Wards and at Large, His Worship Mayor Graham of London.

The following subjects will be brought forward, and presented by a leader, and followed by general discussion:

10. Inter-Provincial Highway.

11. Putting Watered Stock into Public Utility Corporations.

12. Treatment of Garbage.

13. Capital Cities in Relation to the Federal and Provincial Governments.

14. Results of Commission Government.

15. Municipal Publicity.

16. Experience of a General Manager.

17. Highways in Relation to City and Rural Municipalities.

18. Housing Conditions necessary for the Prosperity of a City.

19. Railway Crossings of City Streets.

20. Improved Systems of Water Filtration and Purification.

Unfinished business of the convention. Election of Officers—takes pre-

cedence the third day of the convention. Next place of meeting. Each day, convention opens at 10 a. m., 2.30 and 8 p. m. Each day, Committee on Resolutions meets at 9.30 a. m., 2 and 7.30 p. m., and reports to convention at each session. Delegates are requested to present their resolutions at an early hour.

City Marshals and Chiefs of Police Union of Texas.

The annual convention was held in Waco, Tex., June 24-26. President Hollis Barron of Waco occupied the chair.

The general trend of the discussions centered around the proposition of maintaining women policemen on the forces of the several cities of the state, the juvenile courts, laws and regulations, the whipping post and the placing of the police departments, so far as selection of men is concerned, under civil service regulations with pensions for long service.

Robert Davis, commissioner of fire and police of the city of Fort Worth, in a short interesting talk, advocated the employment of women as police officers to the extent of placing one or more detectives at the passenger stations and one as a matron at every city hall in the state of Texas.

George Smith of Dallas in discussing the matter of securing better service in the police departments, went on record as favoring the appointment of the chief of police of the cities in Texas for a term of their natural life, that is until they were retired on a pension. He stated that this method of selecting a chief of police every two years was one of the things which was affecting the departments of the different cities.

O. R. Montgomery, chief of police of the city of Fort Worth, discussed at some length the matter of juvenile laws, regulations, etc., and outlined what should be done in this matter. Chief Montgomery stated that the juvenile laws of the state of Texas gave the county and district judges of Texas almost unlimited jurisdiction in the matter of youthful offenders against the law, but that after they were apprehended and dealt with by the courts there was little to do in most cases except to place them in jail with the hardened criminals, and that this was a little worse than letting them alone.

He stated that what Texas needed was parents who were advocates of the adage of Solomon, and who were not afraid to correct their children. He stated that the reason young boys and girls went wrong was because they were not treated right at home, and stated that if the youngsters were given the right training by the parents the juvenile court would have to close up.

President Barron in his annual address advocated the keeping of records of all persons arrested, the date of their arrest and the result of their trials. Referring to the pistol carrying habit, he advocated a fine of \$200 for violations of the law.

One of the most important matters

considered at the meeting of the peace officers was the proposed regulation of pool and billiard halls of the state, and in this matter the legislative committee will urge the governor to submit to the coming special session of the legislature a bill providing for the closing of all pool and billiard halls in the state at midnight every night and forcing them to remain closed until 6 o'clock a. m.; to close these places at midnight Saturday night and have them remain closed until 6 a. m. Monday; to have all screens, etc., which obstruct the view of passersby removed, and to prohibit minors from entering these places under any circumstances.

Following is the list of officers for the ensuing year:

President—W. L. Sallis of Brenham.

First vice-president—W. S. Knight of Corsicana.

Second vice-president—J. E. Whitley of Honey Grove.

Third vice-president—George A. Smith of Dallas.

Secretary-treasurer—C. W. Newby of Fort Worth (elected for life).

Assistant secretary and treasurer—Arthur Forrest of Houston.

Sergeant-at-arms—O. R. Montgomery of Fort Worth.

The incoming president, W. L. Sallis, immediately after being installed in office announced the personnel of the following committees:

Executive—W. H. Perrett of Galveston, A. W. Bond of Rogers, W. T. Warren of Bealton, M. T. Sheppard of Temple, W. F. Sullivan of Caldwell and J. B. Anderson of Moody.

Transportation—O. R. Montgomery of Fort Worth, W. H. Perrett of Galveston, B. S. Davison of Houston, J. W. Ryan of Dallas, Hollis Barron of Waco, W. S. Knight of Corsicana, Fred Lancaster of San Antonio, George A. Smith of Dallas, T. J. Coggins of the Gulf, Colorado and Santa Fe, Mr. Carothers of the International and Great Northern, and Mr. Bann of the Missouri, Kansas and Texas.

There was but little fight for the next convention, San Antonio was unanimously selected.

PERSONALS

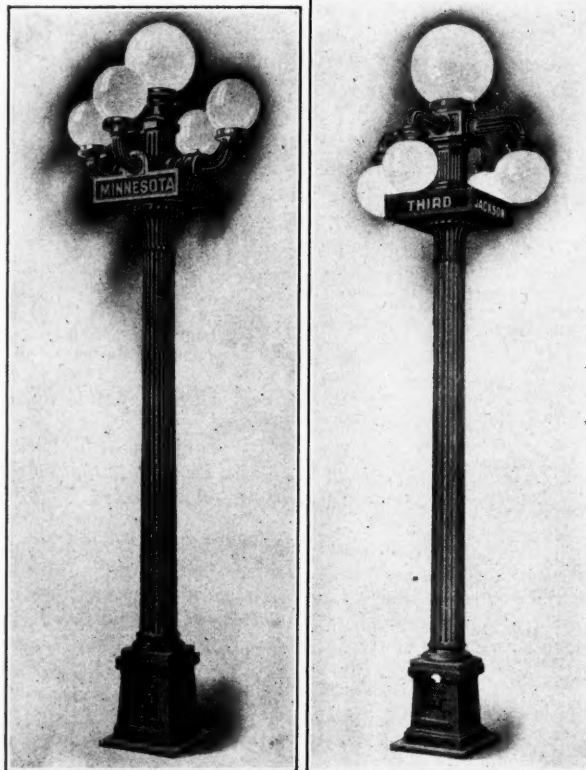
The following Mayors have been elected: Florida—Jacksonville, Van C. Swearingen; St. Augustine, Amos W. Corbett. New Jersey—Bordentown, James F. Gilbert. Virginia—Warrenton, Lucien Leath, re-elected. New York—J. Albert Frost. Louisiana—Logansport, George K. Gibbs.

Maryland.—Mt. Ranier, Mayor Ben-naman has announced the following appointments: Councilman—John Cline; Streets and Roads—Gilbert Hughes; Buildings—Fred Webber; Health and Police—W. W. James; Fire, appointments: Councilman John Cline, Streets and roads; Gilbert Hughes, Buildings; Fred Webber, Health and Police; W. W. James, Fire, Street, Light and Licenses.

MUNICIPAL APPLIANCES

Light Standard with Street Sign.

The Roberts-Perkins Co., Plymouth Bldg., Minneapolis, Minn., have placed on the market a street lighting standard designed by Kees & Colburn which has considerable artistic merit. At intersections this standard carries a box sign of attractive appearance as shown in the illustration. The sign may be illuminated at night if desired. This feature effects a considerable economy as compared with the use of separate posts for street names.



ROBERTS-PERKINS LIGHT AND SIGN POSTS.

The construction of the post is claimed to save cost in installation because of the fact that they are shipped practically assembled. The base and shaft are in one piece. The top fits the post with a sleeve joint. The arms are interchangeable and fit into dovetailed sockets. All the parts are made of cast iron. The globe holders are cast on the arms and provided with set screws to hold the globes in place.

The dimensions of the standards are as follows:

No. 1 Standard 8½-in. diameter, 20x20-in. base plate; height to top of globe, 13 feet 6 inches. No. 2 Standard 6½-in. diameter, 18x18-in. base plate; height to top of globe, 13 feet 6 inches.

Hydraulic Gasoline Separator.

A great deal of time and money was expended by the City of New York to investigate the unusual number of sewer explosions which occurred during the past year.

As a result of this investigation, it

was decided that the explosions were probably due to a collection of gases emanating from the gasoline and oil discharged into the sewer lines from floor drains and sinks from garages.

To overcome this condition and prevent the possibility of a re-occurrence of these explosions, and the resultant damage to property, the Municipal Explosives Commission of the Fire Department, on January 3, 1912, adopted new Fire Prevention Laws from which the following extracts are taken:

Section 376. No garage permit authorizing the storage of volatile inflammable oil shall be issued for any premises which are not provided with an oil separator trap * * * attached to the house drain for the purpose of preventing volatile inflammable oils from flowing into the sewer.

Section 396. Each oil separator installed in a garage shall be connected to the house drain, and shall be so arranged as to separate all oils from the drainage of the garage.

Section 435. It shall be unlawful for any person to discharge any volatile inflammable oil into any public drain or sewer.

Section 60. Any person who violates any of the provisions of these regulations is guilty of a misdemeanor and is punishable by imprisonment in a penitentiary for not more than one

year or by a fine of not more than \$500, or both.

The Hydraulic Gasoline and Oil Separators, made by the Hydraulic Oil Storage Co., 90 West street New York, after a series of severe service tests under the supervision of the Bureau of Combustibles, were approved and certificates of approval were issued by the Division of Combustibles of the Bureau of Fire Prevention of the New York City Fire Department.

The suction separator shown in the illustration is particularly suitable for installation in garages without basements and is designed to take care of all effluent. The separator tank can be of any capacity and is placed in a pit under the garage floor.

The gasoline and oil separated from the drainage is automatically collected in an oil receiving tank in plain sight above the garage floor. This tank is equipped with a sight gauge to show, at any time, the amount of oil accumulated.

To draw off the accumulated oil it is only necessary to lift the lever of the special six-way valve and the water, entering under the oil, forces it out of the top through the delivery pipe. This special feature obviates the necessity of using a suction pump or going into a pit in order to draw off the oil.

By the installation of the suction separator the cost is reduced to a minimum, as a pit about 2 ft. 6-in. by 4 ft. dug to a depth of about 30 inches below the level of the sewer line is all the excavation necessary.

The only working part of the suction device is the special six-way valve which is operated only when it is desired to draw off the accumulated oil.

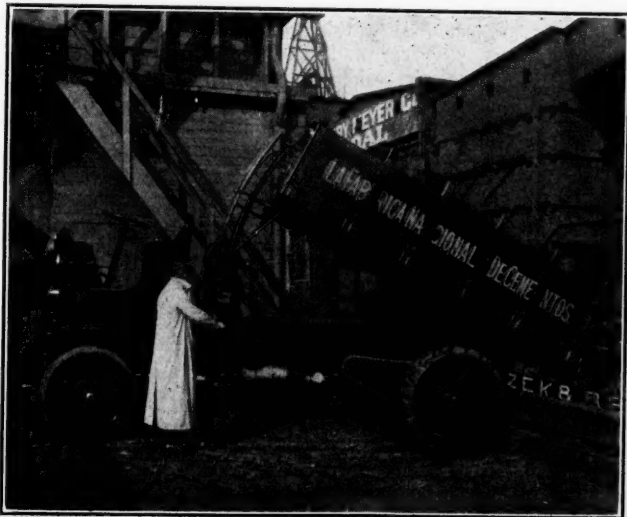
Owing to the elimination of the accumulation of explosive vapors in the oil reservoir, the separator reduces the danger and fire hazard to the very minimum.

Sternberg Power Wagons for Contractors.

The illustrations show the two types of trucks most commonly used by contractors—a platform wagon and an end dumping truck. These machines were made by the Sternberg Mfg. Co., Milwaukee, Wis. The trucks will each do the work of from three to four teams, will do it easier and better, saving not only the large number of horses and vehicles which it displaces, but the extra drivers and helpers, the extra barn room, the extra feed, and the extra care and worry. It will serve under all conditions, it recognizes no "shifts" and will work twenty-four hours out of every day if necessary. It will carry the load up hill and down hill without stop, it never gets tired, it will respond with the same alacrity in the hottest of days, under conditions where horses are lying down and dying by hundreds.

These trucks which are five tons capacity cost a little over \$5,000.

The construction is simple, clean-cut and substantial. One is impressed by the lack of fantastic or useless extravagances. It is built for hard, rough work, and for long service.

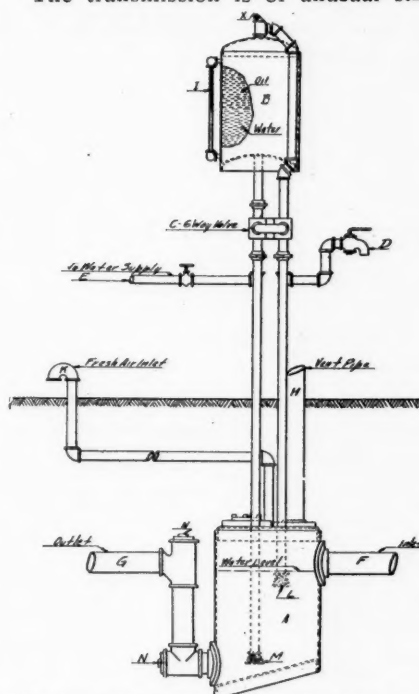


It is fitted with a powerful type of special truck motor, designed with a view to good results in strength, economy, and sound service.

It has four cylinders, cast in pairs, 4½-in. bore, 6¾-in. stroke, giving great power at slow speed, and consequently very economical in operation.

It is controlled in speed by automatic governor restricting the speed of the truck to ten miles per hour.

The transmission is of unusual size



DEVICE TO KEEP GASOLINE OUT OF SEWERS.

and strength in proportion to the great power of the engine. It is of heavy, compact, individual clutch type, with 1¼-in. face gears always in mesh, making it impossible to strip gears in changing of speeds.

The frame is pressed steel, with solid oak lining, of great resilience, and insured against crystallization. The steel and oak are bolted together as one piece, no rivets are employed, and no frame of this make has ever been known to become disjointed or give trouble.

The axles are solid nickel steel forgings, and heat treated, provided with large

taper roller bearings on which accurate adjustment may be made for any possible wear.

The truck is equipped with a large and efficient vertical tube radiator, encased in a leather lined shell suspended on springs, insuring freedom from road shocks.

The motor is claimed to be one of the easiest cooled, and best running under the most severe conditions of hot climates.

The distribution of load, and traction secured, is excellent. In close quarters, on account of the construction of the truck with the engine under the foot boards, it is especially desirable on account of the ease with which it is operated.

The standard equipment is complete and in harmony with the high character of the truck, only the very best material and the highest class of workmanship entering into its construction. It is fitted with electric side and tail lights, Klaxonet electric horn, hub odometer, etc., etc.

Device for Thawing Frozen Fire Hydrants.

The tremendous loss of property in different parts of the country, caused by the frozen condition of fire hydrants, is a subject of great concern to fire underwriters and property owners generally.

The following account of a test, therefore, of a patented device for rapidly thawing fire hydrants in this condition should be of interest, especially to those responsible for furnishing a sufficient supply of water for fire purposes.

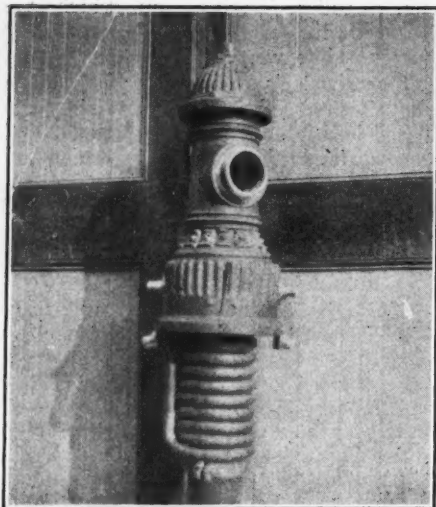
This test was made on February 14th of this year in Philadelphia in the presence of the Chief of Bureau of Fire, Assistant Director of Public Works, and other Fire Department Officials. Insurance interests were also represented.

We quote from their signed testimonials.

Edward A. Waters, Chief Engineer of Fire Department, said: "The test of the thawing device on the 14th of February of this year was an exceptionally severe one in that the hydrant was frozen solid to a point some distance below the valve seat.



STERNBERG END DUMPING AND PLATFORM TRUCKS FOR CONTRACTORS.



HYDRANT WITH HEATING COIL.

Steam at 110 pounds was turned on and in less than two minutes a good fire fighting stream was furnished."

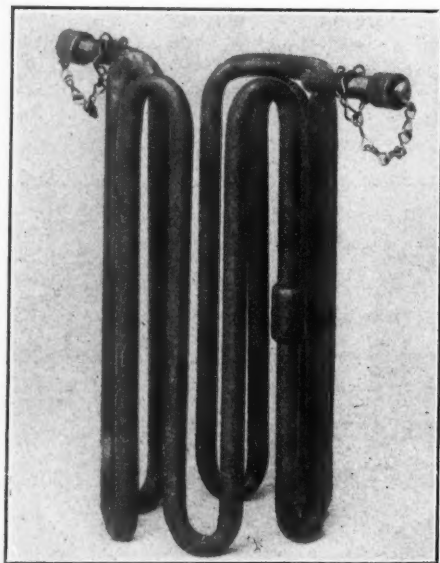
James Reed, Jr., Assistant Director of Public Works, who witnessed the test, furnished a similar testimonial.

Charles A. Hexamer, C. E., a well known authority on fire insurance matters, said: "Any device which will furnish a flow of water from a frozen fire hydrant in two minutes will be of great value."

The accompanying cuts readily show how the device is operated. One cut shows the coil around the hydrant; steam hose from the steamer is coupled to the intake and live steam is rushed through the coil.

The same application pertains to the vertical device. This latter, of course, can be manufactured in quantities and shipped wherever desired. All it is necessary to know is the depth of the first line and the diameter of the pipe.

This device is being placed on the market by the Industrial Requirements Company, 41 South Third street, Philadelphia.

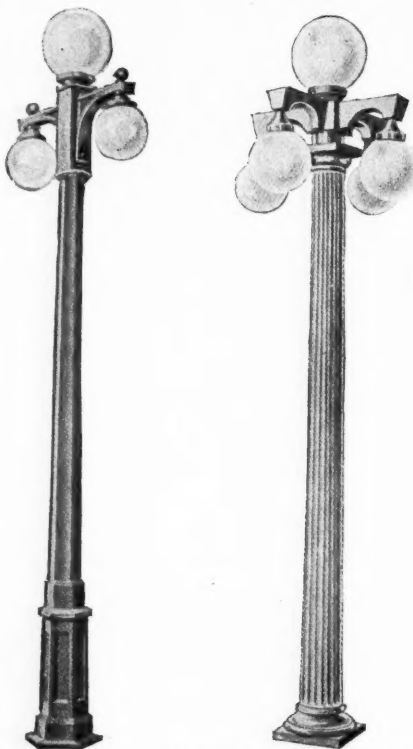


COIL AS SHIPPED FOR ATTACHMENT TO HYDRANT.

Corinthian Street Electrolier.

The Modern Iron Works, Quincy, Ill., make the Corinthian street electroliers shown in the illustrations. These carry three and five lights respectively. The five light electrolier is suited to business streets, whereas three lights are generally considered ample for a residence street. In either case the upper light may be burned all night, after the lower lights are extinguished.

The description and measurements of these electroliers is as follows: Square base, ground space, 15 by 15 inches. Column, diameter at base, 10 inches. Column, diameter at top, 8 inches. Total height over all, 14 feet 2 inches. Spread of brackets, center to center, 39½ inch. Globe, upper light, 16 inches diameter, 8 inch fitter.



CORINTHIAN ELECTROLIERS FOR THREE AND FIVE LIGHTS.

Globes, lower group, 12 inches diameter, 6 inch fitter. Shipping weight, 5 light post, 950 pounds. Shipping weight, 3 light post, 890 pounds.

A system of illumination suggested by the company is as follows: A cluster of five globes, upper 100 candlepower; lower, 75; total per post, 400. For streets of average width and measuring 400 feet per block, five posts to the block, both sides of the street, one upon each corner, thus ranging the posts 100 feet apart, except at the intersections, makes an excellent installation. The posts should be set on concrete foundations. The average cost of erecting the posts and doing incidental work amounts to about 75c. to \$1.00 per front foot. On this basis the cost of installation is about \$2 per foot. The cost of current for five lights burning from dusk to midnight would be about \$60.

INDUSTRIAL NEWS

Cast Iron Pipe.—Chicago.—Quotations: 4-inch, \$28.50; 6 to 12-inch, \$26.50; 16-inch and up, \$25.50. Birmingham. A fair number of orders for extensions and repairs are being received. Southern producers are expecting some export business. Production is light. Quotations: 4-inch, \$22; 6-inch, \$20. San Francisco. Several municipal projects are delayed pending the sale of bonds. New York. Quotations: 6-inch, \$23 to \$24.

Lead.—With demand light, market is firm. Quotations: New York, 4.35c.; St. Louis, 4.225c.

Road Machinery.—George F. Ford has resigned as president and general manager of the Universal Road Machinery Company. The board of directors, at a meeting held on June 30, elected S. H. Chauvenet, president and appointed R. E. Leighton, general manager, the latter being retained in his position as assistant secretary and treasurer. It was also decided to transfer the executive offices to Kingston, N. Y., from which place all business will be transacted in future.

Pneumatic Tires.—One of the most convincing bits of evidence that motorists generally have awakened to a realization of the fact that inflation is a decidedly important element in the general scheme of tire service is the present widespread use of the air pressure gauge. In this respect campaigns of education carried on by tire manufacturers are bearing fruit. Likewise experience has been a good, though perhaps expensive, teacher. The man who pays the bills has found out that if he expects his tires to render their full measure of efficiency he must keep plenty of air in them. "Beyond question under-inflation is the most pernicious abuse to which tires are subjected," says J. D. Anderson, General Sales Manager of the United States Tire Company. "Running tires so soft that they will not remain round under load paves the way for a large percentage of the injuries which decrease mileage and increase tire maintenance expense. It should be understood that the sidewalls of a tire are its thinnest part and that here most of the bending action takes place when the wheel is turning. If the tire is not given enough air to keep it perfectly round the action of the rim on the sidewalls becomes violent and in a short time the carcass is broken down. We recommend twenty pounds of air to the inch. A four-inch tire should be inflated to 80 pounds, a five-inch tire to 100 pounds, and so on through the various sizes. It is absolutely impossible to tell whether a tire has sufficient air in it by any amount of feeling or kicking, and here is where many motorists make a big mistake. A tire may appear round and feel hard when as a matter of fact it has only half enough pressure on the inside. More air pressure gauges are being used this season than ever before and car owners are certain to save a vast amount of good money through this channel."

WEEKLY CONTRACT NEWS

ADVANCED INFORMATION

BIDS ASKED FOR

CONTRACTS AWARDED

ITEMIZED PRICES

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
Ill.	Peoria	July 13	Concrete, 3,280 sq. yds.	S. W. Eckley, Pres. Bd.
Wis.	Racine	July 13	Paving Kinzie Ave.	P. H. Connolly, C. Eng.
Ala.	Brewton	noon, July 14	Earth road, 11 miles	M. F. Brooks, Judge
Minn.	Minneapolis	11 a.m., July 14	Gravel, 8,000 lin. ft.	A. P. Erickson, Co. Aud.
O.	Greenwich	July 14	Brick, tar macadam, 5,701 sq. yds.	F. H. Daniels, Vil. Clk.
Ind.	South Bend	11 a.m., July 14	Paving highway	C. Sedgwick, Co. Aud.
Fla.	Amiret	July 14	Imp. state road No. 2	E. S. Shepard, Co. Aud.
Fla.	Jacksonville	3 p.m., July 14	Asphaltic concrete, 2,600 yds	L. D. Smoot, Chief Engr.
W. Va.	Welch	July 14	Paving and drainage	C. M. Kyle, Record.
Tex.	Victoria	10 a.m., July 14	Gravel roads, 20 miles	L. A. Gueringer, Eng.
Conn.	Waterbury	7.45 p.m., July 14	Granolithic walks	J. J. Fitzgerald, Clk.
N. D.	Sioux Falls	9 a.m., July 14	Concrete	W. C. Leyse, C. Aud.
N. Y.	N. Tarrytown	3 p.m., July 15	Macadam, 1.57 miles	Town Clk.
Ky.	Winchester	noon, July 15	Turnpike, 1/2 mile	J. W. Hunt, Ch.
Pa.	Wilderming	8 p.m., July 15	Paving number of streets	M. Graham, Boro. Clk.
Ind.	Ft. Wayne	10 a.m., July 15	Gravel road, 29,000 ft.	C. H. Brown, Co. Aud.
Ind.	Fort Wayne	10 a.m., July 15	Gravel road, 5 1/2 miles	Co. Comrs.
Pa.	Nottingham	6 p.m., July 15	Macadam, 1.75 miles	J. A. Kimball, Secy.
Va.	Norfolk	1 p.m., July 15	Granite blocks, 1,400 tons; curbing, 6,800 feet	W. T. Brooks, C. Eng.
Neb.	David City	July 15	Pavement, 32,000 sq. yds.	Bruce & Standevin, Engrs.
N. J.	Ridgefield Park	July 15	Imp. Hazelton st.	M. D. Starker, Clk.
N. Y.	Niagara Falls	July 15	Paving number of streets	Bd. of Pub. Wks.
Minn.	Minneapolis	10 a.m., July 15	Concrete road, 2.91 miles	A. P. Erickson, Co. Aud.
Del.	Wilmington	noon, July 15	Waterbound macadam, 4 roads	Jas. Wilson, Comr.
Neb.	Grand Island	8 p.m., July 16	Paving 10,400 sq. yds.	C. Council
Ala.	Elba	July 16	Surfacing 3 miles road; cost, \$4,000	W. S. Kellar, St. Hwy. Engr.
La.	Clarinda	7.30 p.m., July 16	Concrete pavement, 15,300 sq. yds.	T. A. Wilson, C. Clk.
N. Y.	Whitesboro	8 p.m., July 16	Paving 1,500 yds.	J. C. Ederley, Jr., Vil. Clk.
O.	London	July 16	Vit. brick, wood, etc.	J. W. Byers, Vil. Clk.
Ind.	Frankfort	2 p.m., July 16	Gravel road	C. F. Cromwell, Co. Aud.
Pa.	Meadville	8 p.m., July 16	Paving North Main St.	F. C. Klebort, C. Clk.
Wash.	Spokane	July 17	Imp. and draining and paving streets	Commissioner Hayden
Ind.	Noblesville	10 a.m., July 17	Four highways	G. Griffin, Co. Aud.
Pa.	Exeter	6 p.m., July 17	Vit. brick	W. F. Dougherty, Secy.
O.	Cincinnati	noon, July 18	Oiling roads	S. Struble, Pres. Comrs.
Wis.	Sparta	July 18	Brick, 5,174 yds.; sheet asphalt, 7,186	E. G. Kowitz, Ch.
Ind.	Brazil	11.30 a.m., July 19	Road in Van Buren Twnshp.	E. A. Staggs, Co. Aud.
Ind.	Terre Haute	11 a.m., July 19	Road	N. G. Wallace, Co. Aud.
Minn.	Hastings	11 a.m., July 21	Imp. roads	T. A. Hoffman, Co. Aud.
Pa.	Chester	8 p.m., July 21	Paving, 150,000 sq. yds.	Wm. Provost, Jr., Ch. Comm.
N. Y.	New York	11 a.m., July 22	Bit. macadam around Ashokan reservoir	J. P. Morrissey, Secy.
O.	Rocky River	July 22	Cement sidewalks	F. Mitchell, Vil. Clk.
Del.	Wilmington	noon, July 22	Macadam roads	Jas. Wilson, Hwy. Comr.
N. Y.	Schenectady	2.30 p.m., July 23	Concrete base and 2-in. wearing surface, 60,000 sq. yds.	F. E. Johnson, Secy.
Va.	Roanoke	noon, July 24	Granolithic sidewalks	F. L. Gibboney, C. Eng.
La.	Bloomfield	July 24	Brick, asphaltic concrete, Portland cement, 5,000 sq. yds.	A. B. Welch, City Clk.
O.	Petersburg	1 p.m., July 25	Bit. macadam or brick	L. W. School, Twnshp. Clk.
Pa.	Media	noon, July 28	Paving and curbing	G. W. Allen, Comr.
N. Y.	Albany	2 p.m., July 28	Imp. highways	John N. Carlisle, Comr.
O.	Wauseon	noon, July 31	Broken stone or concrete, bit. surface	L. H. Deyo, Vil. Clk.
O.	Cadiz	noon, Aug. 6	Vit. brick, 9,000 sq. yds.	W. H. Lucas, Vil. Clk.

SEWERAGE

N. Y.	White Plains	July 12	Disposal plant; cost, \$250,000	Bronx Valley Comrs.
Wis.	Racine	10 a.m., July 13	Vit. pipe, 1,200 ft., 8 to 12-in.	P. H. Connolly, C. Eng.
Minn.	International Falls	July 14	Sewers	R. C. Fraser, C. Clk.
La.	Sac City	July 14	Vit. pipe, 2,800 ft.	W. F. Weary, C. Clk.
O.	Euclid	Noon, July 14	Sewers	F. H. Shoaff, Vil. Clk.
Me.	Portland	Noon, July 14	Intercepting sewers	B. Bradbury, Comr.
N. D.	Sioux Falls	9 a.m., July 14	Intercepting sewer	W. C. Leyse, City Aud.
Ind.	Logansport	10 a.m., July 15	District sewer	Bd. of Pub. Wks.
N. J.	Newark	2 p.m., July 15	Submerged concrete pipe, 4,500 ft., etc.	Passaic Valley Sewage Co.
La.	New Orleans	July 15	Extension to pumping station	F. S. Shields
O.	Cambridge	July 15	Sewage disposal plant	J. A. Leyshon, Dir. P. Serv.
La.	Waverly	5 p.m., July 15	Sewers, 8-in., 4 streets	F. A. Lee, City Clk.
Ill.	Rockford	1.30 p.m., July 15	Sewers, 6,500 ft. 9 to 12-in.	Edwin Main, C. E.
Wis.	Marinette	July 15	Vit. pipe, 1,700 ft. 12 to 20-in.	A. J. Hillis, C. Eng.
Canada	Prince Albert	July 16	Sewers, 50,000 ft.	M. H. Baker, C. Engr.
Minn.	Chisholm	July 16	Disposal works	Vil. Engr.
N. Y.	Eastwood	July 17	Sewer system, cost \$80,000	Geo. Higgins, Engr.
Ind.	Marion	9.30 a.m., July 18	Combined sewer; cost, \$32,000	R. Heck, Clk. B. P. W.
Fla.	Dunnellon	July 21	Sewers, paving, etc.	Mayor and Council
La.	Cresco	8 p.m., July 21	Sanitary sewer, 1,600 ft.	A. W. Gillette, C. Clk.
Md.	Pocomoke City	July 21	Sewers; cost, \$60,000	T. C. Hatton, Engr.
N. Y.	White Plains	2 p.m., July 21	Sewer treatment plant	Bronx Valley Comm.
Mo.	Webster Groves	July 21	Vitrified pipe and disposal plant; cost, \$20,000	W. A. Fuller, C. Eng.
Pa.	North Braddock	3 p.m., July 21	Sewer	G. S. Siefers, Boro. Eng.
La.	New Orleans	July 28	Extending drainage pumping station	F. S. Shields, Secy.
La.	New Orleans	July 28	Underground conduit, gates, etc.	F. S. Shields, Secy.
N. J.	Newark	2 p.m., July 29	Sections 6 & 19, main intercepting sewer	Passaic Val. Sew. Comrs.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
WATER SUPPLY				
Ill.	Monroe	July 12	Well and mains	A. S. Albers, Vil. Clk.
Ill.	Riverside	8 p.m., July 14	Water mains, etc.	E. S. Burling, Pres.
Neb.	Homer	2 p.m., July 15	Waterworks	J. L. Blanchard, Vil. Clk.
Canada	Victoria	July 15	Reinforced concrete pipe, 27½ miles	Comrs.
Cal.	Sacramento	11.30 a.m., July 15	Turbine pumping outfit, 450 HP.	M. J. Desmond, C. Clk.
N. D.	Mayville	10 a.m., July 15	Addition to waterworks	C. G. Vangen, City Aud.
Ga.	Royston	July 15	Water works, 750,000 gals. capacity	C. B. Wellborn, Mayor.
Tex.	Ft. Worth	9 a.m., July 15	Constrn. West Fork dam	M. P. Harwood, Jr., Secy.
Canada	Prince Albert	July 16	Steel water mains, 47,000 lin. ft.	H. M. Baker, C. Eng.
O.	Freemont	noon, July 16	Water meters	K. Williams, Clk.
D. C.	Washington	2 p.m., July 16	Cast-iron pipe, 2,370 tons.	Dist. Comrs.
Minn.	Duluth	noon, July 16	Concrete reservoir	C. S. Palmer, C. Clk.
N. Y.	White Plains	5 p.m., July 16	Current meter, 10-in.	Comrs.
Minn.	Duluth	noon, July 17	Electrically driven pumping machinery	L. McRitt, Comr.
Neb.	Lyons	10 a.m., July 17	Standpipe, cast-iron pipe, etc.	J. F. Piper, Chr. Trustees.
Ill.	Grays Lake	8 p.m., July 18	Tubular well	G. G. White, Clk.
Cal.	Burlingame	8 p.m., July 21	Distribution system	Bd. of Trustees.
Del.	Clayton	July 21	Water works and sewerage system	W. F. Clemens, Secy.
N. Y.	New York	11 a.m., July 22	Bronze gate valves, etc.	Bd. of Water Supply.
O.	Rocky River	July 22	Laying mains	F. Mitchell, Vil. Clk.
Tenn.	Nashville	3 p.m., July 24	Waterproofing reservoir	W. W. Southgate, C. Eng.
Okl.	Oklahoma City	July 25	Pumping plant, etc., at U. S. P. O.	Superv. Arch.
O.	Bexley	July 28	C-i. pipe, 8 miles 6 to 10-in.; valves, hydrants, meters, &c.	A. E. Kimberly, Engr.
D. C.	Washington	11 a.m., Aug. 2	Water pipe near Oakland, Cal.	Navy Dept.
LIGHTING AND POWER				
Sask.	Regina	Noon, July 12	Two motor driven centrifugal pumps	City Comrs.
N. Y.	Syracuse	3 p.m., July 14	Lighting fair grounds	Fair Commission.
Miss.	Biloxi	July 15	Lighting city	Pascal Meaut, Ch. Light. Com.
Mo.	Albany	July 15	Electric light improvements; cost, \$19,000	C. E. Gibboney, Clk.
N. D.	Mayville	10 a.m., July 15	Equipping electric light plant	C. J. Van Gen, C. Aud.
Neb.	Grand Island	July 16	Cable and 131 poles	H. Downer, Eng.
N. Y.	Binghamton	4 p.m., July 16	Municipal electric lighting plant	F. M. Hopkins, City Clk.
Canada	Saskatoon	noon, July 21	Ornamental lighting posts, 60	F. E. Harrison, Mayor.
N. Y.	Schenectady	2.30 p.m., July 30	Electric work, etc., for comfort station	F. E. Johnson, Secy.
FIRE EQUIPMENT				
O.	Akron	noon, July 15	Auto supply wagon	D. P. Stein, Dir.
Pa.	Williamsport	5 p.m., July 15	Fire hose, 1,500 ft. 2½-in.	M. J. Winters, Ch. Comm.
Pa.	Wilkes Barre	July 18	Motor propelled steam engine or motor comb. engine	J. G. Schuler, Chf.
Canada	Saskatoon	noon, July 31	Motor service truck	F. E. Harrison, Mayor.
BRIDGES				
N. Y.	Orangetown	10 a.m., July 12	Concrete bridge	H. T. Essex, Twn. Clk.
O.	Canton	July 14	Two bridges	O. H. Hall.
Can.	Regina	4.30 p.m., July 15	Concrete bridge	A. J. McPherson, Ch.
Del.	Wilmington	noon, July 15	Concrete bridge, 2,500 cu. yds.	B. F. Groves, Pres. Court.
Ga.	Macon	9 a.m., July 15	Four concrete bridges, 100 ft. long.	J. R. Bowdre, Co. Clk.
Wis.	Janesville	July 15	Two reinforced concrete bridges	J. A. Fether, Ch. Bd. Pub. W.
La.	Charles City	noon, July 16	Bridges and culverts; cost, \$9,500	H. B. Rosenkrans, Co. Aud.
Ind.	Marion	2 p.m., July 17	Number of bridges	E. H. Kimball, Co. Aud.
O.	Cincinnati	noon, July 18	Bridges	S. Struble, Pres. Comrs.
Pa.	Mauch Chunk	10 a.m., July 18	Concrete bridge	J. A. Durling, Clk.
O.	Akron	noon, July 18	Concrete bridges	C. L. Bauer, Co. Aud.
Minn.	Winona	8 p.m., July 21	Concrete bridge, 35 ft. span, 20 ft. wide	G. W. Hoffman, C. Recorder.
O.	Elvira	noon, July 24	Concrete bridge	G. H. Lewis, Dir. P. S.
O.	Toledo	10 a.m., July 25	Culverts	C. J. Sanzenbacher, Co. Aud.
O.	Toledo	10 a.m., July 29	Bridge over creek	C. J. Sanzenbacher, Auditor.
O.	Akron	noon, July 31	Concrete bridge	C. L. Bauer, Co. Aud.
MISCELLANEOUS				
O.	Cincinnati	noon, July 14	Automobile, 4-passenger	V. T. Price, Dir.
N. Y.	New York	11 a.m., July 15	Gasoline motor trucks	P. Jones, Supt. School Supplies
Conn.	Hartford	11 a.m., July 15	Pub. comfort station	Bd. of C. & S.
N. Y.	New York	July 22	Broadway subway, 14th to 26th St.	Pub. Serv. Comm.
N. Y.	Schenectady	2.30 p.m., July 23	Three school buildings	F. E. Johnson, Secy.
La.	New Orleans	noon, July 28	Traveling crane	F. S. Shields, Secy.
N. D.	Bismarck	2 p.m., Aug. 9	Automobile tags, 15,000	T. Hall, Sec. State.
Ga.	Fitzgerald	noon, Aug. 12	Jail cells, two	W. R. Walker, Ch.

STREETS AND ROADS

Gadsden, Ala.—By decision of Supreme Court good roads bond issue of \$135,000 in Marshall county is held good.

Phoenix, Ariz.—City Engineer has presented plans and specifications for pavement on West Jefferson st. and on Second, Third, Fourth, Fifth and Sixth aves. between Washington and Jefferson sts., to council, which have been adopted on recommendation of Street Superintendent Avery Thompson.

Los Gatos, Cal.—Plans for street improvement for which town has authorized issue of bonds to amount of \$35,000, which will cover 40 per cent. of cost of work, have been adopted by Board of Town Trustees at special adjourned meeting, together with resolutions of intention for work.

Pasadena, Cal.—Millard ave. will be graded, curbed, guttered, sidewalked and macadamized.

Planada, Cal.—It is practically assured that state highway from valley through Planada, Cathay valley and Mariposa to the Yosemite will be constructed at early date.

Pomona, Cal.—Election is recommended for voting on \$75,000 bond issue for improving five main streets of city.

Redwood City, Cal.—Redwood city board of trade has started movement to secure road from San Francisco and peninsula to Big Basin.

Sacramento, Cal.—Petition is being circulated asking Supervisors to prepare county bond issue for \$1,850,000 for repairing, building and improving Sacramento county roads.

San Fernando, Cal.—One more highway is to be built in San Fernando valley. When completed valley will have most extensive boulevard system of any section in Southern California.

St. Augustine, Fla.—Resolutions have been adopted providing for issuance of \$70,000 in warrants to be expended in road and bridge work which practically insures hard surfacing of John Anderson boulevard to north county line and also Hastings-Elkton road as well as construction of several concrete bridges before next winter.

St. Augustine, Fla.—Specifications will be drawn for shell paving on both Jacksonville and Hastings roads and later, if sufficient funds are available, it is intention to pave with 8 ft. of brick and 4 ft. of shell on each side one mile of Jacksonville highway up Durbin Hill, one of worst stretches on highway.

Wallace, Idaho.—At meeting of City Council it was decided to pave Sixth st. from Cedar st. to bridge over South Fork, opposite Northern Pacific depot, distance of about two blocks. Ordinance calls for paving at cost of not to exceed \$1.70 per yd.

Indianapolis, Ind.—Board of Public Works has ordered City Engineer Klausman to prepare plans and specifications for paving Bancroft ave., from New York to Michigan sts. and Ohmer av.

Indianapolis, Ind.—Resolution has been adopted for paving of English ave.

Burlington, Ia.—City Council has adopted resolutions ordering Seventh and Cedar sts. paved.

Leavenworth, Kan.—Resolutions have been placed on their first reading for regrading and paving and curbing of Pennsylvania from Shoemaker to Fifth ave.; Elm from Second ave. to Fourth; Maple ave. from Thornton to Santa Fe, and Thornton from Fifth ave. to Maple. Also for regrading and paving of Sixth st. from Kiowa to Miami; Congress from Second ave. to Third ave., and Seneca from Seventh to Broadway. Also to regrade, pave and curb Chestnut from Second to Fourth and an ordinance to regrade and pave Olive from Second to Fourth.

Louisville, Ky.—Improvements are planned for various streets.

New Albany, Ky.—Board of County Commissioners has sold to J. F. Wild & Co., of Indianapolis, \$27,200 4½ per cent. macadamized roads bonds.

Elton, La.—Concrete sidewalks, a light and water plant are among possibilities for Elton.

Lake Charles, La.—Police Jury has passed resolution calling special election to be held Aug. 19 to vote on \$900,000 bond issue to raise money for building good roads.

Baltimore, Md.—Ordinances authorizing opening of new thoroughfare in Woodberry and an avenue, to be known as Monastery ave., in West Baltimore, have been approved.

New Bedford, Mass.—Both Purchase st., from Union to Elm st., and Union st. from Purchase to Sixth st. have been ordered widened by City Council.

Hancock, Mich.—The Keweenaw County road commission is planning number of extensive improvements on the road in Keweenaw County. Plan of commission is to build roads after specifications sent out by state.

Kalkaska, Mich.—There is some likelihood that proposed Chicago-to-Mackinaw road will be routed through Kalkaska county.

Duluth, Minn.—Estimates of cost of paving Grand ave., from Vernon st. to Fifty-fourth ave. west and West Superior st., Jenswold st. and Oneota st., from Twenty-fifth ave. west, have been prepared by engineering department for Commissioner Murchison, of works division. Estimates are both brick and sandstone laid on concrete base for full distance.

Minneapolis, Minn.—Final approval of plans for concrete road from Wavzata to Minnetonka Beach, distance of three miles, and known as North Shore road, has been given by state highway commission and way is clear for actual work on highway. Commission has approved plans for roads in Beltrami, Carlton and Olmstead Counties. These aggregate 89 miles in length and will cost \$151,578.

St. Paul, Minn.—State Highway Commission has given its approval for construction of 89 miles of roads in Beltrami, Carlton and Olmstead Counties. Cost of improvement will be \$151,578 and approval of highway commission carries with it assurance that half expenses will be paid by state. These roads will be part of state road system. Final approval has been made of three miles of concrete road in Hennepin county.

St. Paul, Minn.—State Highway Commission has sent to Auditor Nelson, of Washington County plans and specifications for concrete highway through Forest Lake and Oneka, and matter will be considered at Washington County Board meeting July 13. This is part of proposed Twin Cities-Duluth highway. As estimated, cost is \$11,000 a mile for concrete there is some sentiment in county against building with that material.

Butte, Mont.—Bids will be readvertised for paving of West Park st.

David City, Neb.—David City is asking bids on asphalt and brick work that will cost that city about \$75,000, and Grand Island is also advertising for bids on vertical fiber pavement that will run close to \$80,000 in cost.

Manchester, N. H.—Board has passed resolutions recommending to Common Council appropriation of \$100,000 for building streets and sewers, amount to be expended \$60,000 for new streets and \$40,000 for new sewers.

New Brunswick, N. J.—Declaring that bids which they received for improvements to Woodbridge-Carteret road were irregular. Board of Freeholders have passed resolution rejecting all of them.

New Brunswick, N. J.—Plans have been approved by Freeholders for improvement of Roosevelt-Woodbridge rd.

Mickleton, N. J.—Board of Freeholders of Gloucester County has advertised for bids for building of road between Mickleton and Swedesboro, unfinished part of road leading from Camden to Salem.

South Orange, N. J.—Ordinance has been adopted for grading and macadamizing of Hilton ave. E. R. Arcularius, Township Clerk.

Binghamton, N. Y.—Bids will be advertised for various street improvements.

Brooklyn, N. Y.—Bids have been rejected for paving of Shell road.

New York City, N. Y.—Bids for repaving Fifth ave., from Washington sq. to 42d st., with sheet asphalt on 6-in. concrete foundation will be advertised this

week by Borough President McAneny. Work will be divided into three contracts, one for section from square to 23d st., one from 23d to 34th st., and one from 34th to 42d st.

Niagara Falls, N. Y.—Common Council has approved of \$100,000 worth of new pavements, as follows: North ave. from Main to Lockport sts., \$47,250; Sixteenth st. from Ontario ave. to Linwood ave., \$23,000; Robinson court from Portage road to Fourteenth st.; Weston ave. from Fifteenth to Twenty-second sts., \$19,100; alley between Third and Fourth sts., from Niagara to Main sts., \$9,080, and Twenty-fifth st., from Ferry to Pine aves., on which no estimate has yet been made.

Rochester, N. Y.—Plans have been taken up for construction of street parallel to Main from South ave. to East ave.

Saranac Lake, N. Y.—A petition ten ft. long has been presented to Board of Village Trustees. The petitioners asked trustees to lay out street over route of what was formerly known as Terrace st.

Schenectady, N. Y.—Ordinance has been adopted for grading, curbing and paving of Monroe st. Frank Cooper is Corporation Counsel.

White Plains, N. Y.—The Highway Department has taken up for immediate repair following highways in Westchester county: Pleasantville-Pocantico Hills highway No. 520; McKees Corners-Briar Cliff highway No. 53; Briar Cliff-Echo Lake highway No. 54; Mt. Kisco-Millwood highway No. 587; Ossining-Kitchewan highway No. 768; Kitchewan-Croton Lake highway No. 405; Echo Lake-Pine's Bridge highway No. 143. Approximately 23 miles in all.

Raleigh, N. C.—Petition has been received from citizens of South West st. asking that section of this street be graded and curbed.

Barberton, O.—Ordinance to issue bonds in sum of \$5,400 for purpose of paving and grading Newell sts. has been passed.

Cincinnati, O.—County Commissioners have approved plans for improvement of Campbell road at cost of \$14,338. Improvement was ordered advertised for bids. Improvement will extend from State Line road to 1,300 ft. west of Kirby road.

Dayton, O.—Finance Committee will advise that bonds in sum of \$8,200 be issued for paving of intersection at Irving ave. and East First st.

Stevensville, O.—Commissioners of Irondale and Yellow creek pike have submitted their report of probable cost of 9.4-10 miles of pike, most of which will be paved, to be \$120,000.

Toledo, O.—Bids will be received at the office of the City Auditor, Toledo, O., until 7:30 p. m. Wednesday, July 30, 1913, for the purchase of \$130,633 City of Toledo, 4½% Street Improvement Bonds.

Toledo, O.—Council has passed ordinance providing for bond issue of \$98,000 at 4½% to pay city's share for elimination of Lake Shore crossing at East Broadway.

Klamath Falls, Ore.—Considerable road work will be done in Klamath county this summer. Among chief improvements will be building of lake shore road for several miles along east side of Upper Klamath Lake.

Erie, Pa.—Resolutions have been adopted for various street improvements.

Franklin, Pa.—At special meeting select council passed ordinance providing for repaving of Liberty st. between Moffet's alley and 15th st.

Seranton, Pa.—Under provisions of new roads bill presented by Representative Jones, of Susquehanna, and passed at session of General Assembly just concluded, about 1,000 miles of new roads will be built in state. Almost every county in state is touched by provisions of bill and 78 routes are laid out.

York, Pa.—About 73 miles of new state highways for York county are provided in recent highway construction bill which now awaits signature of Governor Tener. There are four different routes for York county. Longest of these new highways will be known as route No. 333 and will extend from New Cumberland through Yocumtown, Newberrytown, Strinestown and Zions View, intersecting present route No. 250 at toll gate beyond North York.

Woonsocket, R. I.—Improving of Har- ris ave. is being considered.

Knoxville, Tenn.—Specifications and profiles for construction of road from Rutledge pike to Mascot and McBee ferry will be made next week by Edward T. Gorham, County Engineer.

Barry, Tex.—Proposition to issue bonds to amount of \$75,000 for good roads has been carried by vote of 177 to 85 in election. Funds will be used on highways for good roads district No. 3.

Corpus Christi, Tex.—City Council has ordered paving of Leopard st.

Dallas, Tex.—Extension of Preston st. has been petitioned for.

Pilot Point, Tex.—City Council is making preparations to begin paving public square and work will be rushed to completion as quickly as possible.

Wichita Falls, Tex.—City Council has ordered paving of Tenth st., this city's principal residence thoroughfare, for distance of about two miles. Asphalt or wooden blocks will be used. Over 75 per cent. of property owners have petitioned for paving.

Brigham City, Utah.—City Council is considering additional paving petitions presented by W. V. Call, representing six blocks in Fourth Ward. This makes total of 26 blocks of additional paving asked for by city.

Salt Lake City, Utah.—Commissioners of Salt Lake county have decided to call bond election for issuance of bonds to improve roads of Salt Lake county.

Jonesville, Va.—In road bond election held for two districts of Lee County, election was carried for \$76,000 additional bonds for Rose Hill District, which gave majority of 90 in favor of issue, and Rocky Station District, which gave majority of 17.

Norfolk, Va.—Extension of Olvey road is being considered.

Pulaski, Va.—Representatives from State Highway Commission are at work making surveys of roads in Dublin magisterial district of Pulaski County in preliminary arrangement for beginning of permanent improvements of roads.

Spokane, Wash.—Petition for improvement of Normal road, which commences at junction of Sunset boulevard and Hayford road, has been filed with Board of County Commissioners, asking that 6.68 miles of highway be improved at the county's expense. Highway is being standard graded by township authorities and county board will pass preliminary resolution authorizing surfacing of highway.

Spokane, Wash.—City Council has approved plan of Commissioner Hayden for resurfacing Post st. hill, on north side.

Madison, Wis.—Finance Committee has recommended to Assembly appropriation of \$1,200,000 annually for next two years for state highway department to assist in building of roads.

Superior, Wis.—Work on paving of Baxter ave., between North Third st. and North Twenty-first st. will be started within a few days.

CONTRACTS AWARDED.

Arnheim, Cal.—For paving with asphalt Los Angeles st. to Los Angeles Paving Co., at 13.99 cts. per sq. ft., or total of about \$50,000.

Long Beach, Cal.—Supervisor William E. Hinshaw has stated that Board of Supervisors has awarded to Benson & Son, former Long Beach residents, contract to construct three-mile concrete boulevard, extending from Orange county line, at Bay City, through Naples to Long Beach city limits on Livingstone drive, just south of east end of Broadway, and thence along Livingstone drive to intersection of Miramar and Ocean aves.

Oakland, Cal.—For straightening of Death Curve to Ransome Crummeys Co. at \$78,691.40 for 5-inch asphaltic macadam.

Sacramento, Cal.—Bids have been opened by State Highway Commission for six links in State highway system to be constructed under \$18,000,000 bond issue, and awards will be made later for 37½ miles of road construction, costing \$265,394.15. Commission took figures under consideration, after having computed totals showing lowest bidders, and announced that its decision would be made after thoroughly comparing bids with estimates. Following are bids received: El Dorado County—State highway between Shingle Springs and El Dorado, 5 miles, water-bound macadam; Arthur S. Lyons and Ira N. Burke, Smith's Flat, lowest bidder, \$31,786.90; engineer's estimate, \$19,372.33. San Mateo County—Grading 2-mile strip between Cypress Lawn Cemetery and South San Francisco, lowest bid Mahoney Bros., San Francisco, \$17,412.05; engineer's estimate, \$25,289.77. Santa Clara County—Constructing road between Morganhill

and Gilroy, 7½ miles; E. O. Burge, Sacramento, lowest bidder, \$33,860.60; engineer's estimate, \$44,436.23. Santa Barbara County—Constructing 12 miles of highway between Los Alamos and a point 1½ miles north of Bicknell Station; lowest bid \$91,148.50, by Mayer & Lewis, of Venice; engineer's estimate, \$96,550.95. San Luis Obispo County—Construction of highway between San Luis Obispo and Santa Margarita, 6½ miles, E. O. Burge, Sacramento, lowest bidder, \$53,335; engineer's estimate, \$46,211.83. San Bernardino County—Construction of highway between the western boundary of the county and running by way of Ontario, 6½ miles; Benton & Pennebaker, Los Angeles, lowest bidder, \$37,851.10; engineer's estimate, \$49,266.12.

Lewiston, Ill.—For 16,000 sq. yds. dollarway pavement to Dolarway Paving Co. of Illinois, Springfield, Ill.

Davenport, Ia.—For 7,860 sq. yds. of dollarway pavement to McCarthy Co. of Davenport.

Charlotte, Mich.—For construction of one mile on Ionia road in Kalamo township to Claude Reeder of Dimondale at \$1,780.

Maplewood, Mo.—For 1,750 sq. yds. dollarway pavement to M. S. Bowlin, Tip-ton, Ind.

Webster Grove, Mo.—For 1,100 sq. yds. dollarway pavement to M. L. Bowlin, Tip-ton, Ind.

Billings, Mont.—County Commissioners have let contract for grading and finishing about 10 miles of road near that town to B. R. Davis and A. L. Clark for \$130 per mile.

Newark, N. J.—For paving with bitulithic St. 20th st. by Board of Works to Standard Bitulithic Co. at \$23.161.

Binghamton, N. Y.—At adjourned meeting of Board of Contract and Supply several paving contracts were let. Contract for concrete pavement on Center st. was awarded to Takach & Chappel at \$1.49 per sq. yd. This is a pavement similar to that placed on Henry and upper Water sts. Contract for paving Eldredge st. from Chenango to State st. was awarded to A. D. Osborne, Binghamton paving brick to be used, at cost of \$1.84 per sq. yd. This is marked reduction over cost of other brick pavements, and is due to fact that cost of freight, which is largest item in purchases of brick, is saved, material being manufactured in this city. A contract was awarded to A. D. Osborne to pave State st. from Henry st. to Eldredge st., also using Binghamton brick.

Buffalo, N. Y.—By Commissioner of Public Works, contracts for paving as follows: German Rock Asphalt & Cement Co., Ltd., Grote st., asphalt, \$30,225; Merrimac st., asphalt, \$24,560; Ruhland ave., asphalt, \$14,330; Exeter ave., asphalt, \$14,140; Military road, asphalt, \$7,515; and Jackson st., asphalt, \$6,210. Erie Contracting Co., Scoville ave., brick, \$10,900.

Oswego, N. Y.—For paving E. Bridge st. to John Hendrick at about \$14,000.

Mandan, N. D.—Contract for paving streets through certain sections of business portion of Mandan have been let to James Kennedy of Fargo. Bid accepted was for bitulithic paving.

Eugene, Ore.—Paving bids have been let as follows: 1,500 ft. on Spring blvd. to Clarke & Henry Construction Co., for 4-in. base with 1-in. binder and a 1½-in. surfacing, at \$1.50 a square yard; two blocks on Pearl st. between Fourth and Sixth aves., to Clarke-Henry Construction Co., for a 5-in. cement base, with a 2-in. wearing surface, at \$1.53 a sq. yd.; two blocks on Oak st. from Fifth to Seventh to the Warren Construction Co., for a 4-in. base with a 2-in. wearing surface, at \$1.86 per yard.

Forest Grove, Ore.—For paving eight blocks in Forest Grove to Linden Kibbe Co., Selling Bldg., Portland, at \$30,000.

Erie, Pa.—For paving lower Sassafras st. with asphalt, from Second st. to Front st., to J. & M. Doyle, at \$1.70 per yd., and for paving alley from Fifth to Sixth st., to V. D. Forsman, at \$1.55 per yd. for Bessemer brick block.

Pittsburgh, Pa.—By Department of Public Works for repaving of Forbes st. with block stone to Booth & Flinn at \$29,682.38, and Grant st. at \$1,980.33.

Seranton, Pa.—To Raymond Construction Co. for section of new county road.

Cosmopolis, Wash.—For paving business section of city, to Harbor Paving Co., of Aberdeen, at \$30,585.

Spokane, Wash.—A. Wold handed in lowest bid when City Council opened proposals for planking Trent ave. from Grant st. to the West Trent ave. bridge, engineer's estimate being \$6,600. Low

bidder's proposal was \$6,400 and other bids opened are as follows: Inland Empire Hassam Paving Co., \$7,365; Washington Contracting Co., \$6,433; Mitchell Bros., \$6,550. Only one bid was received on grading, curbing, parking and sidewalk of York ave., Division to Atlantic st., estimated at \$860. This was from C. M. Payne, who offered to do work for \$780.

Spokane, Wash.—By City Council, contract for paving Trent ave. with planks and Grant st. to west Olive bridge to A. Wold, low bidder, at \$6,400; also for grading York ave. to C. M. Payne, at \$780.

Superior, Wis.—By Board of Public Works, contract for grading Lackawanna ave. from 21st st. to 23d st., to Peterson & Holm, whose bid of \$597 was lowest.

Superior, Wis.—Contract for concrete culvert and fill over Newton Creek at West Sixth st., East End, has been awarded to E. Hawarden on his bid of \$1,356.

SEWERAGE

Long Beach, Cal.—At meeting of City Council it was decided to hold \$375,000 municipal bond election July 30. Ordinance ordering election was passed by unanimous vote. Money from sale of bonds will be used for construction of outfall sewer system, and building of incinerator plant, latter to cost \$35,000 and former \$340,000.

San Jose, Cal.—Construction of large number of sewers is being planned.

Newark, Del.—Bids for proposed system of sewers and disposal plant at Newark have been opened by Sewer Commission. Bids for disposal plant follow: L. B. Jacobs, Newark, \$12,380; M. and T. E. Farra, West Chester, Pa., \$15,574; Kelly-McFeeley Co., Camden, N. J., \$10,750.82, and the New York Sewage Disposal Co., of New York City, \$13,438.

Kellogg, Idaho.—Ordinance to place \$30,000 sewer bonds on market has been passed by City Council.

De Witt, Ia.—Election will be held July 9 for voting on bond issue of \$20,000 for construction of sewers.

Waterloo, Ia.—Voters of sewer district No. 2, comprising First and Second Wards of city of Waterloo, will be privileged to vote in special election to be held July 14 to approve or reject proposition to construct extension of Dry Run sewer. It has been estimated by City Engineer that cost of such extension will approximate \$28,860.

Shreveport, La.—Movement has been inaugurated by City Commissioners for elaborate extension of sanitary sewerage system to serve all southern and western sections, work to cost probably \$250,000. City Engineer Wilson has been instructed to prepare plans.

Gardiner, Me.—It has been voted to have city engineer make plans and specifications and call for bids for construction of 650 feet of sewer on Water st., commencing at Oak st.

Cuyuna, Minn.—Sewer bonds in sum of \$10,000 have been carried by large majority.

Manchester, N. H.—Board has passed resolution recommending to Common Council appropriation of \$100,000 for sewers and construction of streets.

Trenton, N. J.—Ordinance has been passed providing for construction of Drain No. 110.

Belleville, N. Y.—Ordinance has been adopted providing for construction of Sanitary sewer system. Chas. Lyman Denison is Mayor.

Schenectady, N. Y.—There will be a special meeting of Village Board of Trustees of Eastwood to ratify bond issue for \$85,000 to be used in building 9½ miles of sewer this summer. Property owners of village have declared themselves for sewer system by a vote of 127 to 51. Sewer plans are well under way in office of George Higgins, C. E.

Salem, O.—The \$25,000 intercepting sewer bonds which were to have been sold did not develop, as bonds could not be sold for 4½%. Date now set for selling of bonds is July 30 and they will be sold for 5%.

Erie, Pa.—Resolutions have been adopted for construction of various sewers.

Laurytown, Pa.—Plans and specifications for \$10,000 sewage disposal plant of Middle Coal Field poor district, at Laurytown, have been approved by State Commissioner of Health Samuel G. Dixon.

Knoxville, Tenn.—Enlargement of sediment basins and filtration plant is being discussed.

Nashville, Tenn.—Board has received bids for constructing sewer in alley No. 580, between Blank st. and 17th ave., north. Contract has been awarded to T. I. Curtis & Son at \$1,013.50.

Ennis, Tex.—Ennis Sewer Co. has announced that it will spend \$10,000 or more in extensions within next year.

Fort Worth, Tex.—Polytechnic City Commission has rejected both bids for laying of sewers in that city, as both were considered too high. Another advertisement for bids will be inserted. There are 16,000 ft. of sewers to be laid.

Hillsboro, Tex.—Bond issue of \$25,000 has been voted for sewerage and water works.

Quannah, Tex.—City Council has ordered bond election for July 28 to vote on \$16,000 sewage bonds.

Weatherford, Tex.—Date of local election to pass on matter of bond issue of \$4,000 for sewer extension has been set for July 8.

Hampton, Va.—A new sewer main will be laid shortly on Hope st. and all residents on that street will be forced to connect thereto.

Richmond, Va.—City Engineer has been ordered to ask bids for construction of new sewer in East Grace st., between 19th and 21st sts., and along 21st st. from Grace to Marshall sts., at estimated cost of \$16,178.71.

Spokane, Wash.—Commissioner Hayden has submitted to City Council plan and alternative for sewer large territory in western part of Manito district, main plan estimated to cost \$38,000. Plan includes sub-trunk on Division st. from Twenty-ninth to Twenty-fifth ave., east to Tekoa st., north to Twenty-second ave. and east to Manito boulevard, this part to cost \$18,314. Laterals would be on Twenty-sixth ave. from Tekoa to Browne, Twenty-seventh and Twenty-eighth aves. from Tekoa to Bernard, and Twenty-ninth from Tekoa to Division. Cost is estimated at \$20,808.

CONTRACTS AWARDED.

Hartford, Conn.—For construction of sewers on Bonner, Ledger, Wilton and Catherine sts., to Dan O'Connor, at \$8,327.

Newark, Del.—By Sewer Commission, contract for building system of sewers and disposal plant to Lynwood B. Jacobs, of Newark, Del. Mr. Jacobs' bid for both sewers and disposal plant was \$50,949.52. Other bids were: New York Sewage Disposal Co., \$51,899.82; Kelley-McFeeley Co., of Camden, N. J., \$52,029.41, and M. & J. E. Farra, of West Chester, \$66,407.90.

Pittsfield, Mass.—By Board of Public Works, to C. E. Trumbull, of Boston, at \$17,875, for Newell st. drain, and to E. P. Roberts, of Pittsfield, for the Pleasure Park drain, at \$22,066.

Cold Spring, Minn.—For constructing sewers, to Moffat Co., of Des Moines, Ia., at \$8,000.

Virginia, Minn.—City Council has awarded contracts for storm and sanitary sewer work aggregating about 25 blocks, which will cost about \$10,000. H. L. Bartlett got contract for sanitary sewer in Anderson's third addition at \$2,024 and for storm sewer in same addition at \$4,149.60. Lawrence-McCann Co. of Eveleth got the contract for sanitary sewer in the Fairview addition at \$2,955.90. Other bidders were Rilsberg & Marvick and Pastoret Construction Co. of Duluth.

Ventnor, N. J.—Bids for construction of bulkheads and catch basins have been received by Ventnor Council. E. J. Holland submitted lowest bid but action was referred to committee on streets. Holland's bid on catch basins was \$74.50 for Type "A" and \$50 for Type "B." He bid \$3.60 per lineal ft. on bulkheads with \$1 per cubic yd. for mud fill and 60 cents for sand fill. Smith's bulkhead bid was \$5 per ft.; catch basin, Type "A," \$52; Type "B," \$48. The Abacus Construction Co. bid only on the catch basins, with a bid of \$56.99 each. The Atlantic Construction and Supply Co.'s bid on the catch basins was \$52.50 for each type. The Power Equipment and Construction Co. bid \$4 per lin. ft. on the bulkheading and \$75 for each type of catch basin.

Ballston Spa, N. Y.—Board of Supervisors has opened bids for erection of new county tuberculosis hospital and building sewage disposal plant in connection with it. Thomas Dunn of Saratoga Springs was lowest bidder for each contract. Bids were as follows: County Hospital—Thomas Dunn. Saratoga Springs, \$25,193; F. D. Sherman Co.,

South Glens Falls, \$25,842; James Anderson, New York, \$26,473; E. Gaffney & Sons, Saratoga Springs, \$27,252; James P. Fitzgerald, Saratoga Springs, \$27,966. Sewage Disposal Plant—Thomas Dunn, Saratoga Springs, \$2,417.25; Thomas Leonard, Saratoga Springs, \$2,476; B. Gaffney & Sons, Saratoga Springs, \$2,625.97; Sherman & Blackburn, South Glens Falls, \$2,969.93; New York Sewage Disposal Co., \$3,008.57.

Portland, Ore.—Sewer Committee of City Executive Board has rescinded its award of contract for construction of Halsey st. district sewer to John Keating for \$15,700 and awarded contract to Elliott Contracting Co., next lowest bidder.

Erie, Pa.—For sewer construction, to Clements Wolfram: For Poplar and 29th st. system of 9-in. sewers, Wolfram bid 98 cts. for 9-in. and 77 cts. for 6-in. pipe laying. On sewers in German and Wallace sts., south of 19th st., Wolfram bid \$1.19 and Bancroft asked \$1.20. On Plum st., from 18th to 19th sts., Wolfram asked \$1.24 and Bancroft \$1.25.

Pittsburgh, Pa.—By Department of Public Works for constructing relief sewers on Broad st. to Evan Jones Co. at \$26,457, and on 40th st. at \$14,270.

Park City, Tenn.—To J. A. Ahler Plumbing Co. contract for installation of complete sewer system in Park City. Contract calls for completion of work within four months, with expenditure of approximately \$9,000 to \$10,000. This new sewer system will extend from Spruce st. on the west to eastern corporate limits of city, from Virginia ave. on south.

WATER SUPPLY

Sacramento, Cal.—Erection of filtration plant to cost about \$828,000 is recommended.

Denver, Colo.—Initial steps toward marketing of \$7,000,000 bond issue, authorized by people for purchase or construction of municipal water system,

have been taken by public utilities commission.

Hartford, Conn.—Extension of water mains in various streets has been planned.

Bushnell, Fla.—Installation of water works system is being considered.

Elton, La.—Water and light plant is being considered.

Rayville, La.—Election on proposition of issuing bonds to amount of \$220,000 for purpose of erecting water works plant in Rayville resulted in bond issue being carried.

Billerica, Mass.—Sum of \$22,000 will be borrowed for purpose of extending water pipes into part of town known as Pinehurst Park.

Pass Christian, Miss.—Council is making surveys for proposed laying of about 6,000 ft. of 2-in. pipe in east end of town, along Second st. and cross streets north of Louisville and Nashville Railroad.

Hannibal, Mo.—Special election will be held in Hannibal for purpose of deciding on purchase of water works. To carry proposition to purchase a majority of two-thirds of votes cast must be favorable.

Fulton, N. Y.—Board of Public Works is considering building of new reservoir.

Mt. Morris, N. Y.—At special meeting of Village Board of Trustees it was voted to deposit \$5,000 to prolong option on Mills water works at \$50,000.

Waterloo, N. Y.—Improvement to water works system is being planned.

Portland, Ore.—Both the 24 and 30-in. submerged Bull Run water mains across Willamette will be lowered this summer so as to permit dredging of upper harbor south of Hawthorne ave. bridge by Government. Contract for this work has been awarded to A. C. U. Berry for sum of \$69,400, entire amount to be paid in city water bonds on basis of 93 cents on dollar.

Providence, R. I.—Board of Contract and Supply has voted to advertise for bids on large quantity of filter cloth to

be used at pumping station and for 300,000 brick for public works department.

Providence, R. I.—Board has voted to advertise for bids for contracts to furnish filter cloth for pumping station at Field's Point and for 300,000 brick for department of public buildings.

Nashville, Tenn.—Board of Public Works will advertise for bids during present week for repairing wall of east basin and rendering basin impervious to water, according to plan recommended by Herrin, water works engineer of New York. Contract for former work will probably be awarded this week, and that for latter work somewhat later.

Hillsboro, Tex.—By vote of 127 to 24 citizens of Hillsboro have authorized Council to issue \$25,000 worth of additional water works and sewerage bonds, at election held here to-day.

Quanah, Tex.—City Council has ordered bond election for July 28 to vote on \$20,000 additional water works bonds and \$16,000 sewerage bonds.

Ogden, Utah.—For purpose of raising money to cover part of cost for construction of dam on South Fork of Ogden river to impound water for municipal water works system of Ogden, and to insure ample supply of water for city during months of July, August and September, Board of City Commissioners has passed resolution calling for special election to vote bonds of \$75,000.

Amherst, Va.—Council of town of Amherst has adopted ordinance providing

Bexley, O.—Bids for constructing system of sanitary sewers, according to plans prepared by A. Elliott Kimberley, Consult. Engr., Columbus, Ohio, were as follows: (1) Sieverling & Fairbairn, Springfield, Ohio; (2) F. R. Stone, Lima, Ohio; (3) William Jones, Carnegie, Pa.; (4) S. T. Knight, Columbus, Ohio; (5) Barnewolt Construction Co., Peoria, Ill.; (6) Kohbarger & Hoyles, Marion, Ohio (awarded contract):

	(1)	(2)	(3)	(4)	(5)	(6)
28,529 lin. ft. 8-in. sewer pipe, cement joints.....	\$0.24	\$0.28	\$0.22	\$0.30	\$0.2925	\$0.15
4,824 lin. ft. 10-in. sewer pipe, cement joints.....	0.34	0.37	0.29	0.40	0.405	0.21
4,313 lin. ft. 12-in. sewer pipe, cement joints.....	0.44	0.44	0.35	0.50	0.5075	0.33
3,405 lin. ft. 15-in. sewer pipe, cement joints.....	0.65	0.61	0.51	0.70	0.765	0.40
876 lin. ft. 18-in. sewer pipe, cement joints.....	0.85	0.85	0.72	0.95	0.99	0.60
22,529 lin. ft. 8-in. sewer pipe, asphaltic joints.....	0.32	0.45	0.42	0.35	0.365	0.19
4,824 lin. ft. 10-in. sewer pipe, asphaltic joints.....	0.47	0.52	0.49	0.45	0.4975	0.28
4,313 lin. ft. 12-in. sewer pipe, asphaltic joints.....	0.52	0.60	0.55	0.60	0.65	0.34
1,470 cu. yds. excavation and back fill, under 6 ft.....	0.30	0.33	0.48	0.30	0.23	0.28
6,344 cu. yds. excavation and back fill, from 6 to 8 ft.....	0.40	0.36	0.64	0.40	0.32	0.41
18,979 cu. yds. excavation and back fill, from 8 to 10 ft.....	0.60	0.58	0.72	0.60	0.65	0.52
12,154 cu. yds. excavation and back fill, from 10 to 12 ft.....	0.73	0.80	0.88	0.95	0.78	0.74
1,790 cu. yds. excavation and back fill, from 12 to 14 ft.....	1.05	1.00	1.10	1.20	0.92	1.30
530 cu. yds. excavation and back fill, from 14 to 16 ft.....	1.40	1.40	1.26	1.65	1.44	1.80
800 cu. yds. excavation and back fill, from 16 to 18 ft.....	1.60	2.00	1.42	2.25	1.61	2.75
1 house connection, 6-in. cement joints, each.....	0.55	0.28	0.22	1.10	0.22	0.50
1 house connection, 6-in. asphaltic joints, each.....	0.83	0.45	0.32	1.20	0.28	0.55
923 Y-branches, 8x6-in.....	1.00	1.00	1.00	1.20	1.55	0.90
102 Y-branches, 10x6-in.....	1.40	1.15	1.50	1.70	2.00	1.10
87 Y-branches, 12x6-in.....	1.80	1.50	2.00	2.00	2.38	1.40
12 Y-branches, 15x6-in.....	2.75	2.00	3.00	3.35	2.66	1.75
1 concrete manhole, 8½ ft. and under.....	42.00	35.00	30.00	27.00	65.00	30.00
1 concrete manhole, over 8½ ft. and under 10 ft.....	42.00	38.00	35.00	30.00	77.00	37.00
63 concrete manholes, over 10 ft. and under 12 ft.....	42.00	41.00	45.00	34.00	90.00	44.00
1 concrete manhole, over 12 ft. and under 14 ft.....	42.00	44.00	50.00	38.00	104.00	48.00
1 concrete manhole, over 14 ft. and under 16 ft.....	42.00	47.00	55.00	40.00	119.00	60.00
1 concrete manhole, over 16 ft. and under 18½ ft.....	42.00	50.00	60.00	45.00	135.00	70.00
1 brick manhole, 8½ ft. and under.....	52.00	38.00	30.00	27.00	75.00	30.00
1 brick manhole, over 8½ ft. and under 10 ft.....	52.00	41.00	35.00	30.00	89.00	37.00
1 brick manhole, over 10 ft. and under 12 ft.....	52.00	44.00	45.00	34.00	104.00	44.00
1 brick manhole, over 12 ft. and under 14 ft.....	52.00	47.00	50.00	38.00	120.00	48.00
1 brick manhole, over 14 ft. and under 16 ft.....	52.00	50.00	55.00	40.00	137.00	60.00
1 brick manhole, over 16 ft. and under 18½ ft.....	52.00	53.00	60.00	45.00	155.00	70.00
3 concrete drop manholes.....	52.50	45.00	60.00	45.00	100.00	70.00
3 brick drop manholes.....	60.00	50.00	60.00	45.00	115.00	70.00
14 concrete single flushing manholes.....	55.00	48.00	75.00	60.00	50.00	70.00
16 brick single flushing manholes.....	63.00	54.00	75.00	60.00	57.00	70.00
2 concrete double flushing manholes.....	110.00	55.00	100.00	100.00	55.00	80.00
2 brick double flushing manholes.....	122.00	60.00	100.00	100.00	63.00	80.00
16 lampholes.....	10.00	9.00	10.00	10.00	15.00	10.00
1 deep house connection.....	5.00	2.00	10.00	2.50	2.20	9.00
3 tons 14-in. cast-iron pipe.....	40.00	45.00	60.00	50.00	45.00	30.00
2.9 tons 18-in. cast-iron pipe.....	45.00	45.00	60.00	50.00	50.00	30.00
Class A concrete, per cu. yd.....	8.00	10.00	12.00	9.00	10.00	10.50
Class B concrete, per cu. yd.....	7.00	10.00	10.00	7.50	8.00	9.00
Class C concrete, per cu. yd.....	6.00	8.00	9.00	7.00	6.00	8.00
Rock excavation, per cu. yd.....	6.00	4.50	5.00	5.50	5.00	3.00
M ft. b.m. timber in foundation.....	38.00	35.00	50.00	50.00	30.00	30.00
M ft. b.m. sheathing in trench.....	38.00	35.00	40.00	50.00	30.00	30.00
Common labor, per hour.....	0.30	0.30	0.25	0.26	0.35	0.22
Skilled labor, per hour.....	0.50	0.50	0.35	0.50	0.50	0.225
Foreman, per hour.....	0.60	0.60	0.60	0.75	0.65	0.30
Teaming, per hour.....	0.60	0.65	0.60	0.55	0.65	0.45
6-in. tile underdrains.....	0.30	0.30	0.20	0.25	0.12	0.25
8-in. tile underdrains.....	0.35	0.33	0.25	0.30	0.18	0.40
10-in. tile underdrains.....	0.45	0.40	0.30	0.35	0.25	0.45
12-in. tile underdrains.....	0.68	0.50	0.35	0.40	0.31	0.50
Railway crossing, lump sum.....	400.00	100.00	200.00	250.00	500.00	100.00
Totals.....	\$46,013	\$47,559	\$51,914	\$53,185	\$53,526	\$41,735
Totals.....	\$49,267	\$53,722	\$59,447	\$55,284	\$56,655	\$43,257

for issue of bonds amounting to \$10,000, proceeds of which are to be used in securing water supply and electric light plant for village.

Puyallup, Wash.—Better water system is being planned.

Sumner, Wash.—Town Council has decided to offer W. H. Paulhamus \$2,500 for old Sumner water system. Council's offer includes payment at rate of \$40 a month.

CONTRACTS AWARDED.

Monona, Ia.—By City Council to Des Moines Bridge & Iron Co., of Des Moines, for construction of municipal water works; cost about \$16,000.

Pass Christian, Miss.—Alonzo B. Hayden has submitted lowest bid at \$859 for laying of 4-in. water main on Front st.

Homestead, Pa.—For installing two 250-horse power water tube boilers for Borough Water Works to Babcock & Wilcox Co. New brick stack has been awarded to H. R. Heinicke. Work is under supervision of Chester & Fleming, Engineers, Pittsburgh, Pa.

Nashville, Tenn.—By Board of Public Works contract for cleaning out east basin of reservoir to E. T. Lewis & Co., the price being \$2,400.

Park City, Tenn.—Contract for installing complete pumping equipment has been awarded the R. T. Blow Co., representing American Well Works Co., of Aurora, Ill.

Fort Worth, Tex.—By Commissioners, to Texas Manufacturing Co., contract for placing pump and tank at water plant in rear of county jail.

Payson, Utah.—Contract for construction of water works system for Payson City has been awarded to Wheelright Construction Co., of Ogden, at bid of about \$52,000.

Front Royal, Va.—For constructing water works and sewer system to Wm. Tunny, of Joliet, Ill., at \$28,550.

Puyallup, Wash.—Knoell & Houk were successful bidders for laying of iron water mains in Main st., Summer and Union aces, Puyallup. They will do work for \$1,298.75.

Superior, Wis.—Board of Public Works has awarded contract for installation of water and gas connections on Tower ave. from 16th st. to 21st st. to Stack Bros. Co. The Superior Water, Light & Power Co. was only other bidder.

LIGHTING AND POWER

Los Angeles, Cal.—City engineer has certified to sufficiency of petition filed by property owners on Moneta ave., between 36th place and Vernon ave., for installation of ornamental lights, and it is expected that City Council will at once take steps to start necessary proceedings. Lights will extend distance of little less than a mile.

La Junta, Colo.—Arrangements are being made for establishment of gas plant at La Junta. W. H. Gates and G. M. Culber have proposition which has been placed before City Council asking for franchise. If this is granted they will

Bushnell, Fla.—Installation of electric light plant is being considered.

Winter Park, Fla.—Finance Committee of Council, Mr. H. A. Ward, chairman, has duly advertised for sale of new 7 per cent. bonds to the amount of \$10,000, which have been issued for installation of electric light plant.

Dixon, Ill.—City Council has appropriated \$1,500 for boulevard lights to be erected in business portion of city.

Elton, Ia.—Light and water plant is being considered.

Camden, N. J.—Camden Council has taken another step toward establishment of municipal lighting plant. Special committee having matter in charge presented report recommending that after additional bond issue of \$240,000 had been provided contract is to be let for \$465,500.

Chambersburg, Pa.—It has been resolved by Burgess & Town Council that sum of \$2,700 be expended by Borough in improving lighting of Main st., between north side of King and south side of Washington sts., and Market st. between east side of Second st. and Market st. bridge, on condition that sum of \$3,700 be contributed by citizens of borough.

Salt Lake City, Utah.—It is proposed to install uniform system of "white way" are lights along both sides of streets.

Amherst, Va.—Council has adopted ordinance providing for issue of bonds amounting to \$10,000 for securing electric light plant and water supply for village.

CONTRACTS AWARDED.

Washington, Ia.—For supplies for new lighting system to be installed in Washington, to Commercial Electrical Supply Co., of St. Louis, Mo., at \$8,322.

Roseau, Minn.—Village Council has awarded following contracts for electrical power house and water works system: Power house, Fawcett & Bergstrom, Duluth, \$4,795; engine, boiler and electrical machinery, Northwestern Electric Equipment Co., St. Paul, \$4,927; pole line and street lights—The Electric Construction Co., St. Paul, \$3,896; Water works, Charles W. Erlandson, Roseau, \$2,700.

Camden, N. J.—For constructing proposed municipal electric light plant, from plans of Runyon & Carey, 122 Market st., Newark, as follows: Carleton & Co., building, \$73,620; Storm & Co., boilers and generating equipment, \$115,980; Atlantic Construction Co., of Atlantic City, electrical work, \$279,900; total, \$469,500.

Waterloo, N. Y.—For ornamental lighting system, by Village Board, to Central New York Gas & Electric Co. Entire cost of new system will be \$5,594.50 per year, increase of \$1,212.54 over old style lighting. Contract has been signed for five years.

FIRE EQUIPMENT

Fresno, Cal.—Motorizing of two pieces of fire apparatus is recommended.

Bridgeport, Conn.—Purchase of combination chemical and hose wagon has been authorized.

East Greenwich, Conn.—Taxpayers have voted to build new fire station on corner of Long and Main sts., which is in business centre of village.

Hartford, Conn.—Plans for improvement of fire department are being discussed.

Naugatuck, Conn.—Purchase of 500 ft. of hose has been authorized.

Washington, D. C.—Congress has made appropriation for installation of modern system of auxiliary fire protection for three of the largest buildings occupied by Department of Interior. Address Chief Clerk of Interior Department.

Tampa, Fla.—Purchase of two large steamers is recommended by Chief W. M. Mathews.

Dixon, Ill.—City Council has appropriated \$5,000 for purchase of new automobile fire truck.

Laporte, Ind.—Purchase of motor apparatus has been recommended.

Des Moines, Ia.—Purchase of several more pieces of motor apparatus is being discussed.

Kansas City, Mo.—Several pieces of motor apparatus will be purchased. John C. Egner is Chief.

Butte, Mont.—City Clerk has been instructed to advertise for bids for auto fire engine.

Rochester, N. Y.—Board of Contract and Supply has rejected bids on new Exchange st. fire house and has directed Clerk Frank X. Pifer to advertise for new bids.

Dayton, O.—That bonds in sum of \$119,000 be issued for complete motorizing of fire department will be recommended to City Council by finance committee.

Massillon, O.—Bond issue of \$15,000 is being discussed for motorizing fire and police departments.

Middletown, O.—Purchase of motor apparatus has been authorized.

Pittsburgh, Pa.—Pittsburgh will build new modern fire engine house at Webster and Seventh aces, to cost \$60,000. Plans are being prepared by Architect John P. Brennen and provide for structure 69 by 100 feet, with concrete foundations, slate roof, hollow tile walls and every modern equipment. It will house new motor apparatus which has been ordered by bureau of fire.

Cranston, R. I.—City Council of Cranston has voted to appropriate sum of \$750 for purchase of 1,000 ft. of hose for Arlington Fire Company. It has also voted to purchase shut-off nozzle and four fire lanterns for company.

Wichita Falls, Tex.—Purchase of another automobile fire engine by city is contemplated, and it will probably be ordered for delivery next year.

Spokane, Wash.—City Council has adopted plan of Commissioner Coates to build new South Side fire station on property owned by city water department at Lincoln Heights reservoir.

Tacoma, Wash.—Purchase of two gasoline pumps and two gasoline combina-

tion hose and chemical wagons has been recommended.

Waupeca, Wis.—About 500 ft. of hose will probably be purchased.

CONTRACTS AWARDED.

San Francisco, Cal.—By Board of Fire Commissioners, to American-La France Co., for motor fire engine at \$10,800.

Atlanta, Ga.—Mayor Woodward has signed contract for new automobile fire engine in Tenth ward, which recently was purchased from American-La France Fire Engine Co. for \$9,000.

Emporia, Kan.—By city, to Eureka Fire Hose Mfg. Co., of Kansas City, Mo., for 1,000 ft. of their Paragon brand fire hose at \$1.10 per ft.

New Bedford, Mass.—City Council committee on fire department has reported receipt of bids for motor fire apparatus, and submitted order authorizing contracts with Ahrens-Fox Fire Engine Company for one engine, and with Robinson Fire Apparatus Manufacturing Company of St. Louis, Mo., for one fire engine, each to cost \$9,000.

Grand Rapids, Mich.—An order has been placed by Board of Police and Fire Commissioners with Couple-Gear Automobile Co. of this city for two-wheel tractor to be used at No. 3 fire station.

Rochester, N. Y.—Contract for 50-gallon chemical tank for Fire Department has been awarded to American-La France Company for \$424.

Portland, Ore.—Fire hose contracts have been awarded as follows: Eureka Fire Hose Manufacturing Co., 3,000 ft. of 2½-in. Paragon hose for \$1.10 a foot; American Rubber Manufacturing Co., 1,000 ft. of 2½-in. Crackerjack at 85 cts. a foot and 800 ft. of 1½-in. Crackerjack hose at 48 cts. a foot; Fabric Hose Co., 3,000 ft. of 2½-in. Keystone hose at \$1.10 a foot; Bowers Rubber Co., 1,000 ft. of 2½-in. Victor hose for 80 cts. a foot; Republic Rubber Co., 1,000 ft. of 2½-in. Invader hose for 83 cts. a foot; Goodyear Rubber Co., 1,000 ft. of 2½-in. Columbia hose for 85 cts. a foot; Guttapercha Rubber & Manufacturing Co., 800 ft. of 1½-in. Rescue hose for 48 cts. a foot.

Portland, Ore.—To A. G. Long, contract for furnishing city with one American-LaFrance auto pumping engine for sum of \$9,000.

Portland, Ore.—Bids for fire engine house at Third and Glisan sts. have been opened by fire committee of City Executive Board, and contract awarded to A. C. Meyers for \$11,678, which was lowest proposal.

Lynchburg, Va.—For furnishing one 75-foot motor aerial truck, to Seagrave Co., Columbus, O., \$11,000.

BRIDGES

Miami, Ariz.—Gila County Board of Supervisors has authorized construction of seven bridges on highway between Globe and Miami and is having roadbed changed and put in first-class condition. It is estimated that these improvements will cost between \$9,000 and \$10,000.

Washington, D. C.—New bids will be asked for construction of new Q st. bridge over Rock Creek.

St. Augustine, Fla.—Specifications will be drawn at once covering estimated cost of permanent concrete bridge over San Sebastian to New Augustine, concrete bridge over Durbin creek and at Twelve Mile Swamp near Sampson. It is expected that twenty thousand dollars will be provided for bridge work.

Abbeville, Ga.—Dodge County's Commissioners have met in Abbeville with Wilcox County's Commissioners to discuss proposed building of bridge across the Ocmulgee River to connect Wilcox and Dodge Counties.

Muncie, Ind.—County Commissioners have approved plans for Sharon bridge across Mississippi River, north of DeSoto, submitted by County Surveyor Webber, and bridge will be advertised for sale at once. Plans call for two spans, one a "through" span and other a "pony" span. Entire length of two will be 250 ft. It will be constructed of steel and concrete.

Kansas City, Kan.—An issue of \$20,000 has been voted to construct reinforced concrete bridge over Jersey Creek at Seventh st.

Haverhill, Mass.—County Commissioners have decided to rebuild three spans of Groveland bridge, recently burned, putting in modern steel structure with reinforced concrete floor. They have \$55,000 available for purpose and cost will be apportioned on railroad and county.